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ABSTRACT

This document outlines the purposes and main activities of a 2-week national institute held in July 1993 in Berkeley, California. Ten teams of vocational and academic educators (125 high school and community college teachers, counselors, and administrators) from 10 major metropolitan areas were selected through a competitive application process to participate in the institute. The teams worked with two mentors (an expert practitioner and a graduate student) to develop a strategic plan for initiating or continuing the development of an integrated tech prep program within urban schools. The planning documents for integrated tech prep programs at high schools and community colleges serving the following major cities are included: Washington, D.C.; Cleveland, Ohio; Las Cruces, New Mexico; Saint Paul, Minnesota; Philadelphia, Pennsylvania; Tuscaloosa, Alabama; Detroit, Michigan; Oklahoma City, Oklahoma; Raleigh, North Carolina; and Baltimore, Maryland. Each plan includes information on some or all of the following: current programs (if any), planning team members, program philosophy, student outcomes, program structure, secondary-postsecondary partnerships/articulation, evaluation, and budget. (MN)

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ED 363 789

NCRVE

National Center for Research in
Vocational Education

University of California, Berkeley

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS: PLANS DEVELOPED AT THE NCRVE 1993 NATIONAL INSTITUTE

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ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS: PLANS DEVELOPED AT THE NCRVE 1993 NATIONAL INSTITUTE

National Center for Research in Vocational Education
Graduate School of Education
University of California at Berkeley
2150 Shattuck Avenue, Suite 1250
Berkeley, CA 94704

Supported by
The Office of Vocational and Adult Education,
U.S. Department of Education

November, 1993

MDS-770

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TABLE OF CONTENTS

Preface i

Washington, DC 1
    Phelps Career High School
    University of the District of Columbia

Cleveland, Ohio 51
    Health Careers Center
    Cuyahoga Community College

Las Cruces, New Mexico 97
    Mayfield High School
    Doña Ana Branch Community College

Saint Paul, Minnesota 151
    Humboldt Secondary Complex
    Institute of International Studies
    Inver Hills Community College
    Saint Paul Technical College
    University of Minnesota at Minneapolis

Philadelphia, Pennsylvania 185
    Lincoln High School/Swenson Skills Center
    Community College of Philadelphia

Tuscaloosa, Alabama 227
    Central High School
    Shelton State Community College

Detroit, Michigan 271
    Detroit Public Schools
    Golightly Career Technical Center
    Highland Park Community College
    Henry Ford High School

Oklahoma City, Oklahoma 345
    Capitol Hill High Schools
    Oklahoma City Public Schools
    Oklahoma State University-Oklahoma City Branch
    Metro Area Vocational-Technical School

Raleigh, North Carolina 377
    Sanderson High School
    Wake County Public School System
    Wake Technical Community College

Baltimore, Maryland 425
    Mergenthaler Vocational-Technical High School
    Baltimore City Community College

PREFACE

The National Center for Research in Vocational Education (NCRVE) held its third National Institute, "Establishing Integrated Tech Prep Programs in Urban Schools," in Berkeley, California, July 14-23, 1993. Ten teams of vocational and academic educators—125 high school and community college teachers, counselors, and administrators—from ten major metropolitan areas, selected through a competitive application process, participated in this institute. Each team was aided by a representative of its state department of education. Several teams were also assisted by local business partners. Also working with each team were two mentors—an expert practitioner and a graduate student. Speakers, panel discussions, breakout sessions, and role play exercises were all part of the institute experience. In the course of the intensive two week program, each team was charged with the responsibility of developing a strategic plan for initiating or continuing the development of an Integrated Tech Prep program within its institutions.

The Carl D. Perkins Vocational and Applied Technology Act of 1990 (Perkins II) mandated the integration of vocational and academic education as prerequisite for other funding, including funding through the Tech Prep Education Act. By enhancing academic competencies in vocational programs and making academic curricula more accessible to all students, the integration of vocational and academic education has become a vital component of all successful Tech Prep initiatives. Strong Tech Prep initiatives can make powerful contributions to building student competence in academic areas and vocational-technical fields. Through collaborative, articulated efforts between secondary and postsecondary institutions, these programs smooth the transition from school to work by providing students with high quality workplace skills.

Perkins II also addressed the needs of disadvantaged youth, especially those in urban areas, by targeting funding to areas of poverty and special needs. As a result, many large cities have received substantially increased Federal funding. Unfortunately, many urban recipients lack the technical information to plan and implement successful programs. Developing workable strategies to create better schools for students requires an understanding of the issues; a commitment from the leaders; and the support of superintendents, administrators, teachers, and business. Creating such strategies was a major goal of the 1993 Institute.

The 1993 Institute built upon and was strongly influenced by our work with twenty urban school teams who took part in NCRVE's first two Institutes in the summer of 1992, and with whom we have developed our Urban Schools Network. Monitoring site visits, discussion at regional meetings, progress reports, and end-of-year evaluations from these teams helped us to refine goals, refocus and reshape the 1993 Institute. The active participation and ample feedback provided by the participants in our Urban Schools Network was vital to its success. The 1993 Institute participants now join the Urban Schools Network, which encourages exchanges of information between those with extensive experience in various program areas, and others just beginning to learn about them. During the year, NCRVE sponsors regional meetings at which network teams can visit model programs, assess their own progress, and plan future steps. Our ultimate goal is the development of a practitioner "owned" reform movement within vocational education, one that is organized in school and communities, but coordinated and supported on a national level.

The remainder of this document is comprised of ten planning documents developed at the 1993 Institute. It is important to note that these planning documents represent a culminating activity of the 1993 Institute and are not the final Integrated Tech Prep Plans for any of the institutions involved. We are all acutely aware that if the Integrated Tech Prep planning effort is to be successful, it must effectively involve and engage the entire community involved with Tech Prep, and that the effort must be an ongoing, incremental process which will continue long after the institute is over. We trust that these plans will form a substantive basis for the required consultation process which will take place in the coming months.

Our intent in publishing these documents is to assist other community college and high school planners who are initiating or enhancing their own Integrated Tech Prep programs by providing specific examples of plans designed for urban areas. We are pleased by the high quality of the ideas set forth in these plans and are proud to have been associated with the teams which produced them.

The following individuals served as Mentors for the 1993 Institute teams:

Washington, DC

Esther Bailey
Neal Finkelstein

Cleveland, OH

Delores Cassell
Andrew Furco

Las Cruces, NM

James Konantz
Erika Nielsen Andrew

Saint Paul, MN

Carla High
Michael Cohen

Philadelphia, PA

Myrtle Stogner
Jennifer Alleyne-Johnson

Tuscaloosa, AL

Janet Clapsaddle
Joan Thomas
Mayo Tsuzuki

Detroit, MI

Howard Brown
Margaret Easter

Oklahoma City, OK

Bettyann Battist
Anita Bischoff

Raleigh, NC

Stephen Olczak
David Chambliss

Baltimore, MD

Charley Harvell
Dan Brown

NCRVE RESEARCHERS AND STAFF

The primary NCRVE researchers involved with developing the National Institute, "Establishing Integrated Tech Prep Programs in Urban Schools" were Charles Benson and Carolyn Dornsife at the University of California at Berkeley, Debra Bragg at the University of Illinois at Champaign/Urbana, and Darrel Clowes at Virginia Polytechnic Institute and State University. The input of NCRVE's Regional Technical Support Team was instrumental to developing the structure and content of the 1993 Institute.

The NCRVE staff at the University of California at Berkeley responsible for coordinating the National Institute were Ruth Katz, Institute Director; Lola Jackson, Outreach Coordinator; Ok-Kyun Chung, Program Assistant; and Andrew Furco, Graduate Student Coordinator. Team plans were compiled by Anita Bischoff, Ok-Kyun Chung, Andrew Furco, and Ruth Katz.

PHELPS CAREER HIGH SCHOOL
UNIVERSITY OF THE DISTRICT OF COLUMBIA
WASHINGTON, DC

Planning Document Developed at the NCRVE 1993 National Institute:
"Establishing Integrated Tech Prep Programs in Urban Schools"*
July 14-23, 1993

PHILOSOPHY

Understanding the need to prepare all students for an increasingly competitive global workforce, the Integrated Design and Electronics Academy (IDEA) Tech Prep Program of Phelps Career High School in conjunction with the University of the District of Columbia (UDC) offers students in the District of Columbia Public Schools (DCPS) an integrated education with real-world linkages focused on full development of their academic, technical, and leadership skills ensuring employability, job mobility, and adaptability and placing them on an educational continuum from high school graduation to postsecondary education and/or job placement for a lifetime of learning and career success.

Any DCPS middle or junior high school student who is interested in and can benefit from the IDEA program components of academic, technical, and leadership development will be eligible for this program.

Our mission is to revitalize learning by using student-centered approaches which incorporate the seven intelligences (Howard Gardner) which are linguistic, bodily/kinesthetic, spatial, interpersonal, intrapersonal, musical, and mathematical/logical; by using the LLEAP (Linking Learning with EArnings Project) Principles; and by using contextual learning and interdisciplinary curriculum. The LLEAP Principles are listed in an appendix to this document.

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* This is a working paper. It has not been reviewed by either the NCRVE or the educational institutions/agencies where the authors are employed. Therefore, this paper represents the views of the authors only.

GOALS

- To encourage commitment and continuance of our students to a long-range, progressive program of academic career and job preparation through collaborative and innovative instruction and skill focus.
- To teach, promote, and foster the integration of academic education, technical education, and leadership development as a viable and necessary means of job and career preparation, acquisition, and advancement.
- To encourage students to focus on their futures as leaders and team players as they experience progressive articulation with teacher mentors and supporting partners.
- To improve attendance, reduce attrition rates, and enhance student performance.
- To develop specific articulation agreements, integrated counseling strategies, a mentor program, and co-teaching activities between the University of the District of Columbia and Phelps Career High School.

DESCRIPTION OF THE TEAM

The Phelps/UDC Integrated Tech Prep Team is composed of teachers, counselors, and administrators from Phelps, UDC, and the DCPS.

UDC serves as the postsecondary partner in the District of Columbia Tech Prep Consortium. Administrative, counseling, and instructional staff members are committed to full cooperation and participation in articulation, team teaching, block scheduling, mentoring programs, and staff and curriculum development in order to ensure successful transition of IDEA students into their chosen postsecondary programs or work.

The Vocational Education branch of DCPS and its Tech Prep Coordinator will cooperate in helping to provide staff development and coordinate resources for successful implementation of the Tech Prep component of IDEA.

The following people were involved in the preparation of this working plan at the Summer Institute sponsored by the National Center for Research in Vocational Education (NCRVE) in Berkeley, California:

Phelps Career High School

- V. Lisa Savoy, Assistant to the Principal
- Lt. Colonel Oscar Lewis, Academy Coordinator
- Lora I. Ager, Mathematics
- Kenneth Green, Communication Electronics
- Nedra Jones, Guidance Counselor

University of the District of Columbia

- Alfred O. Taylor, Jr., Associate Dean, College of Physical Science, Engineering, and Technology
- Calvin Brooks, Chairperson, Mechanical Engineering
- John Reed, Assistant Professor, Electrical Engineering Technology
- Linda Lewis, Assistant Professor, Mathematics
- Edward Jones, Director, Center for Academic Advising

District of Columbia Public Schools

- Cynthia M. Bell, Assistant Superintendent for Vocational and Adult Education
- Judith Fredette, Tech Prep Coordinator

Other support staff of the Phelps Career High School

- Stanley Conyers, Communication Electronics
- Joe Nickens, Engineering Design
- James Chisley, Engineering and Drafting
- Sara Brown, Science
- Cleopatra Robinson, English
- Oliver Ellis, Fluid Power and Robotics
- Charles Leonard, Industrial Electronics
- James Phiefer, Digital Electronics
- Loretta Cherry, Guidance Counselor

Other support staff of the University of the District of Columbia

- Dr. Philip L. Brach, Dean
- Dr. Harry Morgan, Professor of Physics
- Dr. Clarence Wade, Professor of Chemistry
- Dr. Richard Johnson, Professor of Physics
- Dr. John W. Alexander, Chairperson, Math Department

BACKGROUND INFORMATION

A Unique Approach

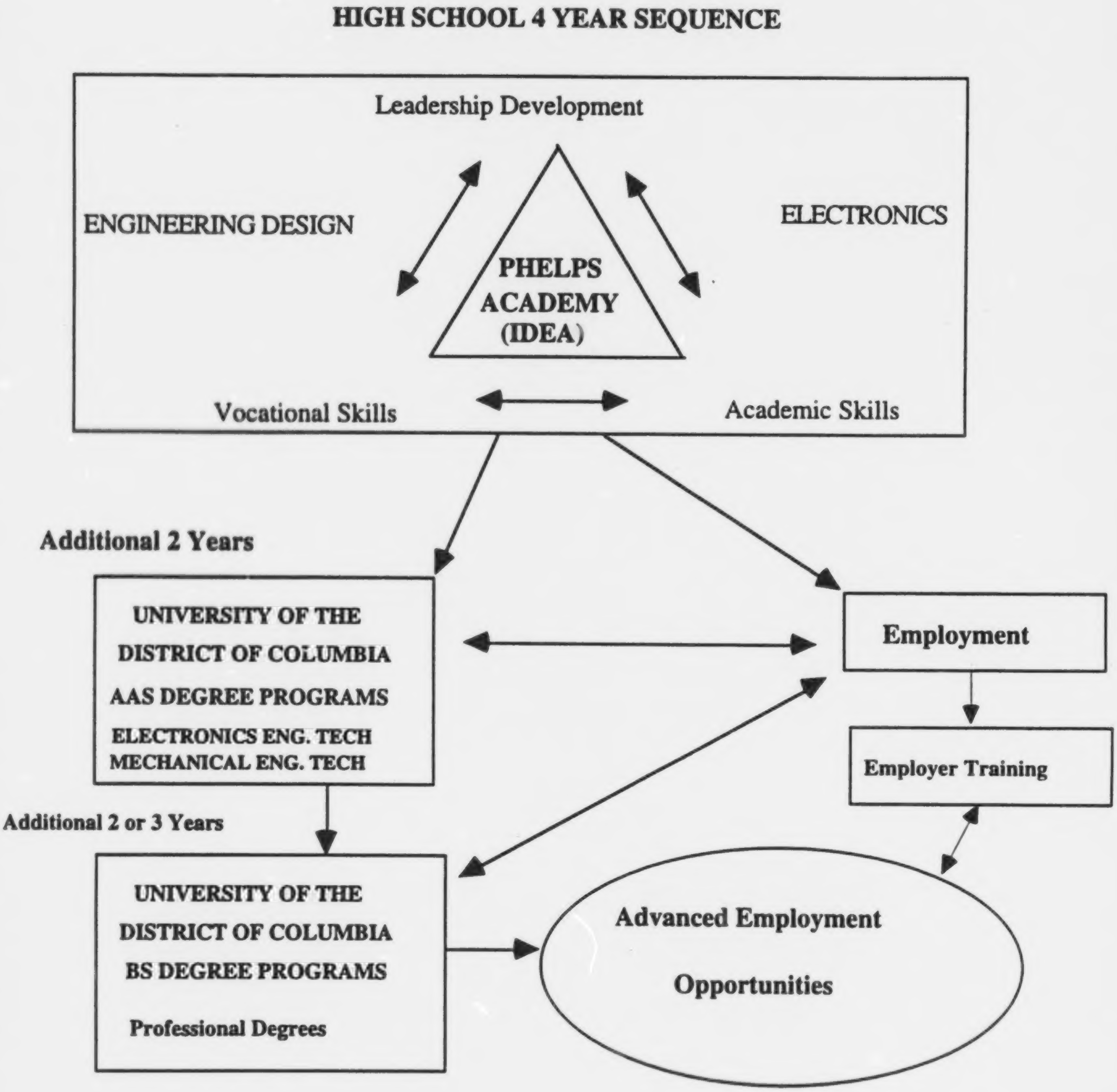
The Phelps Career High School and UDC have entered into an articulation agreement to formulate a Tech Prep program which will include not only the Tech Prep components of complementary academic and technical course offerings, but a unique inclusion of a Career Academy which focuses on integrated designs of electronics, engineering, and academics (entitled IDEA), coupled with a JROTC discipline without any obligation for military commitment. Further, a pilot project which links learning with earning (i.e., LLEAP) is infused, using Gardner's Multiple Intelligences to facilitate the school-to-work effort as an additional component of the Tech Prep program.

The participation of commissioned and noncommissioned officers from the Department of Defense as expert instructional providers in technical electronics and engineering gives even greater diversity to the educational offerings for students.

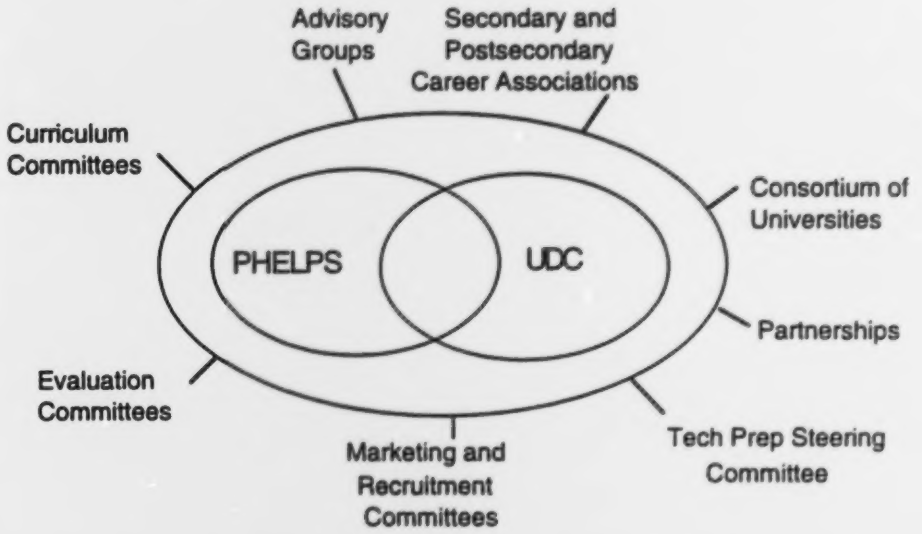
An initial group of sixty ninth- and tenth-grade students will comprise the nucleus of the Tech Prep program of study and services. These students will be the first group on the 4 + 2 + 2 Tech Prep ladder of options. Their eligibility will be based on interest surveys, personal interviews, recruitment profiles, and Junior High or Middle School counselor recommendations. The student's only specific requirement for participation is enrollment in the JROTC program.

The overall objective "everyone graduates" will be closely monitored by counselors, staff, and administration for a 100% outcome. The outcomes of higher retention and attendance will be encouraged and measured through increased daily monitoring, career focus, and secondary/postsecondary peer and mentor partnerships. Standards of trade and industry, along with in-house laboratory mastery standards, will be employed to measure technical competence and class completion. By raising the expectations for all students and faculty, we will encourage a more confident and competent student imbued with self-discipline and leadership skills. Our product will be a more clearly focused career candidate who is likely to advance and remain competent in the workforce 2000.

The following diagram is an illustration of the Tech Prep program:


HIGH SCHOOL 4 YEAR SEQUENCE
Leadership Development
ENGINEERING DESIGN
ELECTRONICS
PHELPS ACADEMY (IDEA)
Vocational Skills
Academic Skills
Additional 2 Years
UNIVERSITY OF THE DISTRICT OF COLUMBIA AAS DEGREE PROGRAMS
ELECTRONICS ENG. TECH
MECHANICAL ENG. TECH
Employment
Employer Training
Additional 2 or 3 Years
UNIVERSITY OF THE DISTRICT OF COLUMBIA BS DEGREE PROGRAMS
Professional Degrees
Advanced Employment Opportunities

Committee Structure of the Tech Prep Program


Advisory Groups
Secondary and Postsecondary Career Associations
Curriculum Committees
Consortium of Universities
PHELPS
UDC
Partnerships
Evaluation Committees
Marketing and Recruitment Committees
Tech Prep Steering Committee

The components and committees that support this Tech Prep program are unusual in that they openly involve both institutions through their composition and mission. The aspects of practicality, flexibility, and value were incorporated into these committees when they began. Each resource or support group provides the students and the institutions with the most effective elements of service and long-term commitment.

The core of these committees is already in place. The membership will grow and change by invitation and volunteerism during the 1993-1994 school year. This will accommodate new providers who will focus and refocus according to the needs and growth of the program.

State of Implementation

The IDEA Program will begin in September 1993 at Phelps Career High School. The staff have been identified and are being trained in the integration of vocational and academic education during June and July at the LLEAP Institute in Washington, DC and at the NCRVE Summer Institute "Establishing Integrated Tech Prep Programs in Urban

Schools" in Berkeley, California. Each career cluster is designed to train students in the basic reading, writing, computing, and problem-solving skills necessary to respond to a changing economic environment.

The Electronics Career Cluster

The electronics cluster will prepare enrolled students for postsecondary training in these areas:

- Electronic Equipment Repair
- Electronic Equipment Design
- Electronic Equipment Manufacturing Processes
- Electronic Equipment Engineering
- Management of the Manufacture of Electronic Equipment

The Engineering Design Career Cluster

The engineering design cluster will prepare enrolled students for postsecondary training in the following subjects:

- Architectural and Engineering Drafting
- Computer-Assisted Design
- Computer-Assisted Manufacturing
- Engineering
- Manufacturing Production Processes
- Manufacturing Management

IDEA students will satisfy all of the DCPS requirements for a high school diploma (see drawing boards, attached). In addition, IDEA students will take their occupational laboratory each year in grades 10, 11, and 12. These requirements will be fulfilled through the following:

- Team teaching by an assigned dedicated faculty
- Cooperative learning
- Integration of career-oriented and academic subjects
- Block scheduling
- Reduced class size
- Integration of the leadership and citizenship training of JROTC

Program Objectives and their Measurement

Program Objectives	Measurement Method
To increase student interest	Interest survey Personal interview Recruitment profiles Counselor recommendations
To graduate everyone	Review of student progress and performance Semester advising Referral for additional support and tutoring
To increase retention rates	Avenues for Financial Aid Peer partnerships Number of students continuing program yearly
To improve student attendance	Increase daily attendance by teachers' records Career area perfect attendance Target 85% attendance rate
To reduce developmental education placement in college	Number of students in college-level courses upon completion of secondary courses
To improve technical competence	Industry and trade standards Assessment of apprenticeship program Number of students receiving a Laboratory Mastery Certificate
To raise expectations on the part of UDC and Phelps faculty, students, and parents	Number of faculty members outside of the academy showing interest in Tech Prep Faculty Interest Survey
To develop self-discipline and leadership skills	Demonstrate appropriate behaviors in a school setting Reduction in number of school suspensions and disciplinary action Fewer teacher referrals Increased participation in extracurricular activities/community service
To ensure that students are more clearly career focused	Increased participation in academically related organization Summer job placement related to career area of training Increased evidence of research/Use of resources pertaining to their career area
To assist students in developing realistic career goals	Review of student trends Increase career counseling

CURRICULUM

The Tech Prep program takes advantage of a natural pairing of the Phelps Electronics program with the UDC AAS Electronics Engineering Technology program and of the Phelps Engineering Design program with the UDC AAS Mechanical Engineering Technology program. In addition to articulating the technological content of the two levels, particular attention is given to DCPS graduation requirements and to UDC university-wide graduation requirements.

Mathematics

- DCPS graduation requirement–3.0 Carnegie Units
- UDC graduation requirement (both programs)–Technical Math I & II
- UDC prerequisite skills–algebra, geometry, introductory trigonometry, and use of scientific calculator

Initially, these cross-team requirements will be met at Phelps by Algebra I and II and Geometry. Trigonometry will be a recommended elective for students who start Algebra in the ninth grade. A Trigonometry unit is included in UDC's Technical Mathematics II, so students who opt to take Trigonometry at Phelps will have the advantage of previous exposure; those who do not will suffer no disadvantage.

Beginning in year one, the traditional content of these courses will be modified to conform to the Tech Prep goal of integrated learning. Initially, integration will be achieved by collaboration between the vocational laboratory and mathematics instructors. A common planning period for the Phelps Tech Prep team is built into the Fall 1993 schedule.

The Phelps mathematics instructors are future candidates for the CORD (Center for Occupational Research and Development) Applied Mathematics training. The UDC partners are already certified CORD trainers. Thus, CORD mathematics modules and advice on utilizing them in traditional courses will be provided immediately. More formal training for Phelps mathematics teachers has been included in the Staff Development portion of this plan.

The DCPS Mathematics Department, as part of the overall Tech Prep initiative, is in the process of creating a modern contextual mathematics sequence. This new sequence of courses, which will satisfy DCPS graduation requirements, will eventually replace the Phelps courses listed above.

Science

- DCPS graduation requirement–3.0 Carnegie units
- UDC graduation requirement (both programs)–Intro. to College Physics I and II
- UDC prerequisite skills–laboratory skills, algebra, and use of scientific calculator

Phelps IDEA students will satisfy these cross-team science requirements by completing courses in General Science, Biology, and Principles of Technology. Physics would be a recommended elective. As with mathematics, the traditional Biology course will be replaced with Applied Biology/Chemistry once a properly equipped laboratory is in place. Since Principles of Technology (PT) is not offered until the second year of the program, we anticipate having the course, with required laboratory, in place at that time.

English

- DCPS graduation requirement–4.0 Carnegie units
- UDC graduation requirement (both programs)–English Composition I & II
- UDC prerequisite skills–facility in grammar, usage, and sentence structure; ability to write a well-constructed short essay

English requirements will be satisfied by English I, II, III, and IV. Phelps has an English teacher as part of the Tech Prep team. Initial efforts to integrate English with the technical laboratory courses and with mathematics will be accomplished by judicious use of the common planning period. Plans are to amend the traditional reading list to include technically related reading material. The English curriculum will include technical reading and writing as a required component to prepare students for the composition requirements of their respective technical disciplines.

Electronics and Engineering Design

- DCPS graduation requirement–1.0 Carnegie unit (Career Preparation)
- UDC graduation requirement–43 to 45 credits of technical courses
- UDC prerequisite skills–engineering drawing (manual and computer aided), engineering design, electronics, and computer preparation (keyboarding/ introduction to programming and operations)

Electronics students at Phelps will take Electronics I, II, and III which will include such topics as parallel circuit construction and analysis, power supply construction and analysis, principles of fiber optics, and others. The Phelps/UDC partners will periodically review and revise the courses to ensure that IDEA graduates are well-prepared for UDC technical courses.

Engineering Design students at Phelps will take Engineering Drawing and Design I & II, Computer-Aided Design, Technical Laboratory Skills, Production and Manufacturing, and Robotics. The Phelps/UDC partners will periodically review and revise the courses to ensure that IDEA graduates are well-prepared for UDC technical courses.

Both programs will include projects which further involve junior and senior students in the integration of acquired technical and communication skills, both written and oral. Projects will be judged by UDC partners.

Leadership

The leadership training element provided by Phelps JROTC instruction is a unique feature of IDEA. This aspect of the program will provide benefits to both school and student. In addition, structured activities of the Leadership classes will provide ample opportunity for Phelps students to meet their community service graduation requirement while developing workforce readiness skills.

Suggested Phelps/UDC Course Alignment: Electronics

Content Area	**9th Grade**	**10th Grade**	**11th Grade**	**12th Grade**	**UDC Yr. 1**	**UDC Yr. 2**
Mathematics	Algebra I or Applied Math I	Geometry or Applied Math II Algebra I	Algebra II or Geometry	Trigonometry (Recommended)	Technical Math I & II	Tech. Elective[1] Social Science Elective[2]
Science	General Science	Biology or Applied Bio./Chem.	Principles of Technology	Physics (Recommended)		Intro. to Physics I & II
English	English I	English II	English III	English IV	English Comp. I & II	
Electronics		Electronics I	Electronics II	Electronics III	Fundamentals of Electronics, Engineering Technology I & II	Electronics I & II
Other Tech					Electronics Shop Skills, Technical Graphics, Digital Logic Circuits, Programming	Microprocessors, Electronic Communication, Electronic Trouble Shooting and Prototyping
Leadership (Military Science)		Leadership, Education, and Training I (LET I)	LET II	LET III		
Other Courses	DC History 1/2 yr. Physical Ed.	Life Skills[3] World History Foreign Language[4] 1/2 yr. Art 1/2 yr. Music Physical Education	Life Skills[3] U.S. History Foreign Language[4]	1/2 yr. U.S. Govt. 1/2 yr. World Geography Community Service[5] 100 Hours		

[1] Must have approval of department chairperson.

[2] Introduction to Logic is strongly recommended.

[3] Life Skills can be taken in 10th or 11th grade. Students who pass the Life Skills exam prior to taking the course may be exempt.

[4] Foreign Language must be taken for two years during the four-year period.

[5] Community Service hours can be accumulated over the four-year period.

Suggested Phelps/UDC Course Alignment: Engineering Design

Content Area	9th Grade	10th Grade	11th Grade	12th Grade	UDC Yr. 1	UDC Yr. 2
Mathematics	Algebra I or Applied Math I	Geometry or Applied Math II Algebra I	Algebra II or Geometry	Trigonometry (Recommended)	Technical Math I & II	Tech Elective[1] Social Science Elective[2]
Science	General Science	Biology or Applied Bio/Chem	Principles of Technology	Physics (Recommended)		Intro to Physics I & II
English	English I	English II	English III	English IV	English Comp. I & II	
Engineering			Engineering & Drawing and Design I	Engineering Design II Computer-Aided Design	Computer Prog. Technical Mechanics Fundamentals of Elec. Engineering Technology I & II	Technical Dynamics Materials Technology
Other Tech			Technical Laboratory Skills	Robotics, Production, & Manufacturing	Electronics & Mechanical Shop Skills Technical Graphics	HVAC I & II Mechanical Systems Technology Seminar
Leadership (Military Science)		Leadership, Education, & Training I (LET I)	LET II	LET III		
Other Courses	DC History 1/2 yr. Physical Ed.	Life Skills[3] World History Foreign Language[4] 1/2 yr. Art 1/2 yr. Music Physical Education	Life Skills[3] U.S. History Foreign Language[4]	1/2 yr. U.S. Govt. 1/2 yr. World Geography Community Service[5] 100 Hours		

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[4] Foreign Language must be taken for two years during the four year period.

[5] Community Service hours can be accumulated over the four year period.

PARTNERSHIPS

Business, Industry, Trade, and Professional Entities

Phelps currently has partnership arrangements with several local corporations. IDEA will make additional efforts to involve federal- and district-level government agencies, and local postsecondary educational institutions will not be limited to Phelps' existing relationships. The development of corporate and educational partners will be a major targeted activity of the IDEA staff.

Listings of local corporations and public agencies will be reviewed to identify those in the electronics and engineering fields. Of these corporations and agencies, approximately six of the largest will be singled out as the key partners. These partners will be sent an introductory letter and a brief description of the IDEA program and the opportunities for partnerships. Presentations will be made to each partner.

Once partners are recruited, they will be integrated into the program planning and design process as early as possible by forming a Partner Advisory Committee. The committee will meet frequently, at which time the core IDEA staff will present aspects of the design for discussion. Subcommittees will be formed to enable corporate and governmental participation in curriculum development and teacher training. During the operational phase of IDEA, partners will provide guests speakers, shadowing opportunities, on-site tours, seminars, and summer internships. Partners will also be involved in evaluating the success of the project and of individual graduating students for possible employment.

Curriculum development will be enhanced through partnerships. Partnerships will lend expertise in developing employability skills which include work and professional ethics; time on task expectations; punctuality; appropriate interpersonal work relationships; team participation; and flexibility to complete varied assignments. Partners will also provide training and technical assistance for faculty members as changes occur in the workplace.

The objectives of the partnerships are to provide new instructional strategies through curriculum suggestion; to provide workforce preparation through real world linkages with internships, cooperative programs, part-time and summer work experiences, and shadowing; and to provide a guide for acquiring new technological equipment. Potential Business Partners are listed in the appendix to this document. We hope to assign a mentor from our partnerships to each student for their entire stay in the program.

Parents and Community

One of the most important components of community partnership relations is the participation of the parents of enrolled students. IDEA believes that schools cannot effectively educate young people without the active participation of individual parents or of another adult significant to the student.

Following the enrollment of students in IDEA, the core staff will present the program to both the enrollees and their parents in the evenings. The parents will be invited to participate in a series of evening seminars on integrated academics and career training, cooperative learning, and how parents can reinforce the education being provided by the IDEA. If, for some reason, a student's parent(s) is (are) unwilling or unable to participate, the student will be asked to identify another significant adult who could fulfill that role. IDEA will produce and distribute a newsletter reviewing program events, scheduling future events, and providing additional information on the IDEA curriculum objectives and style of teaching.

The objective is to provide academic reinforcement through coaching, learning activities, and financial support (scholarship). Potential community partners are listed in the appendix to this report.

GUIDANCE AND COUNSELING

In order to accomplish the Goals and Objectives of the Phelps/UDC Tech Prep program, the Guidance Counseling Department at Phelps and the Academic Counseling Department at UDC will be involved in facilitating avenues of staff and student awareness regarding program advantages and its impact through the following efforts:

- Comprehensive involvement of counselors from both institutions

- Parent orientation
- Extensive student follow-ups for the purpose of providing feedback to appropriate personnel involved in the program
- Preparation of a program brochure to depict the ingredients of Tech Prep and its services

Students enrolled in the Electronics and Engineering Design programs will be presented information on areas related to job location, potential advancement in the field, salary ranges, qualifications for positions, and employment opportunities.

Another priority of the guidance and counseling program will be to match program participants to employment commensurate with educational preparation through the following:

- National Interest Inventories
- In-house student surveys
- Individual counseling sessions
- Mentor/student interests
- Classroom performance

Furthermore, it is expected that the counseling component will expose each participant to vocational guidance and career exploration. It will assist the student in developing and preparing an educational plan and career goals.

The guidance component will also be responsible for a systematic and expanded career guidance system to help measure students' progress and career plans. Expanded guidance counseling will follow students' preparation for the world of work. Students will be assigned a permanent counselor for the period of their stay in the program which will foster continuity. Frequent conferences and class monitoring of vocational and academic progress will also be components of the program. This will be assisted by career information from interagency relationships that include UDC, Phelps, DCPS, Department of Employment Services, Private Industry, Community-Based Agencies, Private Organizations, Clubs, and Service Organizations.

Staff development will also be provided for counselors. Staff at Phelps and UDC will all be involved in professional development that relates to the counseling needs of students. Some of the components will include

- collaboration of counselors from both Phelps and UDC,
- coordination with Phelps and UDC program and service specialists,
- student follow-up,
- assistance in the preparation of brochures and other publicity, and
- identification of programs to match the competencies of employment with those of postsecondary education.

INTEGRATION OF MEMBERSHIP ORGANIZATIONS AND COMMUNITY SERVICE

The newly enrolled high school student may be a novice at developing professional and community interpersonal relationships. In this, all students are encouraged to become participants and seek full membership in vocational student organizations which support the Tech Prep principles and encourage leadership as well as team building. As part of the total preparation and readiness effort for a student entering the workforce in the year 2000, active membership in vocational student organizations develops the following:

- Personal style of leadership
- Responsible citizenship
- Commitment to work
- Pride in accomplishments
- Satisfaction in helping others
- Confidence and self-esteem building
- Decision-making skills
- Team participation
- Options for professional opportunity and growth
- Character and integrity
- Problem-solving and critical thinking skills

Organizations such as Vocational Industrial Clubs of America (VICA) and Technology Student Association (TSA) are spearheads in the endeavor of integrating the vocational and academic components, having already infused most of the Tech Prep principles into their organizations' mission and goals.

The National Community Service Act of 1990 has established a focus on the need for more youthful participants in the world of volunteerism and community service. Training and technical assistance to expand these opportunities may be acquired through internal providers or may be funded by regional clearinghouses.

The Superintendent of the District of Columbia Public School System, supported by the Board of Education, has mandated that beginning with the 1993-1994 school year, all students entering high school must satisfy a minimum of 100 documented hours of community and volunteer service as a condition for graduation. It is believed that in completing this line of service the student will

- renew the ethic of civic responsibility;
- develop a sense of community involvement regardless of age, income, or ability;
- be enabled and encouraged to make sustained commitments;
- develop job skills;
- build networks by inclusion;
- explore a variety of career areas without the responsibility and burden of performance for pay; and
- develop leadership in a volunteer capacity.

Students may be catapulted into memberships in service-based organizations and fellowships following these experiences. The ultimate outcome will be for students to recognize their personal growth, sense of well being, and belonging based on having donated services and time in the community, and thus assign a value to this participation which will motivate them to continue long after any requirements have been met.

LOCAL POLICIES

The Carl D. Perkins Vocational and Applied Technology Education Act Amendments of 1990 provides funds to integrate vocational and academic education through coherent sequences of courses so that students achieve both occupational and academic competencies. Realizing the federal government's commitment to this effort, the Phelps/UDC partnership has also identified the local policies which will be under consideration during the program's operation.

Recognizing the restrictions of servicing a target group of students eligible to participate in the Phelps/UDC Tech Prep program, local policies will be addressed. These policies are inclusive of the DC Board of Education, Office of Personnel Management, UDC Board of Trustees, UDC, and Phelps school-based program policies such as

- admissions requirements into programs at UDC,
- placement examination at UDC,
- course and graduation requirements,
- academic progress,
- school/university calendar (collaboration),
- teacher certification including JROTC Leadership instructor,
- equal access to program for all students,
- articulation agreements, and
- teachers' contracts.

ASSESSMENT AND EVALUATION

Student Assessment

Student assessment will be primarily outcome-based according to industry standards. Attendance, grade point average, and academic progress will be considered as well as performance outcomes. Student projects will include written reports, written and performance tests, and portfolios. Other methods of assessment will include school performance criteria (student retention, number of disciplinary reports, attendance rates, graduation rates, postsecondary placement, employment placements after graduation, and follow-up studies). Standardized tests will also be a component of student assessment (Comprehensive Test of Basic Skills–CTBS). The results will be used to

- identify areas of strength and weakness,
- identify the need for re-teaching/learning,
- identify the need for counseling or referral services, and
- assist in career planning and pursuit of appropriate career paths.

Program Evaluation

The outcomes of the participating Tech Prep students are the basis for the program evaluation. Program accountability, with a focus on improvement, will be closely monitored during the first year of implementation. Site observations and interviews will also enhance this evaluation process. As part of a five year project, collection of data in the first year will provide a base upon which the next four years of service will be built. In-house monitoring will also include attention to national and state standards for program compliance. Areas of program monitoring will include, but not be limited to the following:

- Student and parental feedback
- Attendance monitoring
- Mentor and partner observations and suggestions
- Dropout reduction
- Job placement and training
- Graduation rates
- Trends of grade point averages (GPAs)
- Results on the Comprehensive Test of Basic Skills (CTBS)
- Individual course completion rates
- Results of placement examinations at UDC
- Overall academic progress

- Phelps and UDC collaboration
- Outcomes of JROTC Academy component
- Equal opportunity and access

These evaluation data will be used for the following purposes:

- Program review and modification
- Curriculum revision
- Reports for "The School Profile" and for faculty, administration, parents, and grantors
- Media presentation
- Recruitment
- Certification/licensing by accrediting organizations: Accrediting Board for Engineering and Technology (ABET) and Apprenticeship agencies

AT-RISK/SPECIAL POPULATIONS

Students identified via program funding criteria or by educational assessments as "at risk" or "special populations" have equal access to this Tech Prep program. Public Law 94-142 dictates that all school-aged children are entitled to a free, appropriate, public education in the least restrictive environment. We support this posture by maintaining open admission to all students eligible under the Tech Prep program plan.

Appropriate and necessary support services will be arranged for or provided with resources from the relevant divisions of the DC Public Schools and the University of the District of Columbia (UDC) as articulated in the Tech Prep agreement and as identified under Section III-C of Project IDEA which states the following:

> For IDEA, an at-risk student will be one who is at risk of dropping out of high school, participating in harmful or illegal activities, or failing (a grade of D or F) more than one high school course. These risks will be measured by teacher recommendations, counselor interviews, and transcript review.

Services will be provided at all levels on an "as needed" basis. Existing programs outside of school-based resource providers include volunteer assistance from the following:

- Police Athletic League (PALs)
- Big Brothers/Sisters
- Concerned Black Men
- 100 Black Men
- University of the District of Columbia Mentor Program

Evaluation expectations are no different from any other participant. Staff training for multiple learning systems and sensitivity will be provided during inservice sessions and joint staff development.

BUDGET AND FISCAL ISSUES

Many resources for success of the IDEA Tech Prep Program are already in place at Phelps Career High School including the following:

- **Classrooms**
  In year one, two classrooms will be required. In each of the subsequent two years, two additional classrooms will be required. This space will be provided by District of Columbia Public Schools (DCPS).

- **Laboratories**
  One electronics laboratory and one engineering design laboratory will be required for year one. In each of the subsequent two years, either two additional laboratories or expansion of the two original laboratories will be required. This space will be provided by DCPS.

- **Office Space**
  Two offices will be required, one for the project director, and one for the coordinator/administrator. In addition, two conference rooms will be required, one for staff to use in the common planning period and one for the IDEA staff lounge. This space will be provided by DCPS.

- **Personnel**
  A variety of DCPS and retired military personnel will staff the Career Academy. These are listed in the appendix to this report.

- **Equipment**
  The equipment listed in the appendix will be funded by DCPS with its allocation of Perkins Act funds. IDEA staff will explore the possibility of acquiring the required equipment from surplus military equipment.

Current financial resources include (1) Federal Carl Perkins Title II (Vocational Education) and Title III (Tech Prep) Funding; (2) Department of Defense and Office of Education IDEA Program grant; and (3) appropriated funds (city budget). Currently, available funds are sufficient for present needs. Ongoing assessments will determine further financial needs. Positive assessment and evaluation will provide justification for further grant funding.

MARKETING

The IDEA Tech Prep Marketing Plan will focus primarily on promotion to inform and recruit students into the program. In addition, it will provide information to parents, educators, counselors, potential partners, and the community at large to build broad understanding and support for the Tech Prep program.

The marketing team will be able to take advantage of a number of DCPS internal publications and electronic mail to widely share information about the program. In addition, a Tech Prep newsletter will be used as one of the primary marketing tools for those outside the system. The Office of Corporate, Community, and Parent Involvement has pledged to help market the Tech Prep initiative with its constituencies and to provide specific assistance at the school level in developing strategies to expand support for Tech Prep. In addition, a brochure, parent meetings, presentations to groups, press releases, direct mail, and buttons and hats will be used.

The Marketing Plan will be a short-term strategy for recruiting the 1993-1994 students as well as a comprehensive long-term plan. Immediate outreach to prospective students for the 1993-1994 initial class will include production of a descriptive flyer, a seminar for the Summer Career Explorers Program at Phelps, seminars for participants in other appropriate Summer Youth Employment Programs, and a seminar early in September for incoming tenth graders at Phelps.

Long-term strategies will be developed from September to December, 1993, with the approval process completed by January, 1994. All marketing materials will be produced for the ninth-grade program selection process. IDEA Tech Prep staff and students will present informational seminars for eighth- and ninth-grade students, counselors, and staff at DCPS junior high schools. At the same time, a press release will be forwarded to the DCPS Office of Communications for dissemination to the local media, including neighborhood publications.

A marketing committee composed of members of the Phelps LLEAP Institute and NCRVE Institute Teams will implement the short-term plan during August/September, 1993. A permanent Marketing Committee will plan and implement the long-term plan. This committee will draw members from the IDEA, students, counseling and administrative staff at Phelps, counterparts at UDC and representatives from each partnership, the local education office, the community, and local government.

Resources needed in addition to dedicated personnel are funding and technical assistance (e.g., art, layout, printing, composition). Intended outcomes of our marketing efforts are commitment and involvement from each component of our audience, and informed, focused students prepared to maximize their potential as it relates to educational goals, career opportunities and advancement, and avocational pursuits.

Means of assessment and evaluation will include increased interest and enrollment of students, positive feedback from the business community, press inquiries for information, and increased interest for information and involvement from faculty and staff outside Tech Prep.

STAFF DEVELOPMENT

The major objectives of the Staff Development program are to

- unify the Tech Prep teams attending the DC LLEAP and Berkeley NCRVE Summer Institutes;
- inform Phelps and UDC faculties of the philosophy, educational strategies, and benefits of Tech Prep;
- ensure that all interested members of the Phelps and UDC staffs share a common understanding of all aspects of the Phelps Career Academy and the Tech Prep program;
- develop trained groups of Phelps and UDC staff to serve as marketing and recruitment teams;
- provide opportunities and encouragement for Phelps and UDC staff to attend UDC Methods of Teaching Applied Academics courses and/or CORD "Train the Trainer" workshops;
- ensure that Phelps and UDC counselors have the necessary assistance, information, and time to fill any particular requirements of the Phelps Career Academy; and
- involve the school partners in staff development activities to include design and presentation of an industry specific informational workshop.

APPENDIX 1:
Articulation Agreement

The University of the District of Columbia
College of Physical Science, Engineering, and Technology
and
The Phelps Career Senior High School

Memorandum of Intent

The Phelps Career High School and the University of the District of Columbia (UDC) are committed to developing and implementing a secondary/postsecondary Tech Prep program in the selected technologies of Communications Electronics and Design Engineering. The curriculum to be installed will allow a high school student to enroll in classes that qualify for postsecondary credit during and after the student has graduated.

Participating Institutions

We, the undersigned representatives of the institutions, agree to the terms of this Articulation Agreement after the date of signing.

PHELPS CAREER SENIOR HIGH SCHOOL

____
Principal

____
Date

UNIVERSITY OF THE DISTRICT
OF COLUMBIA

____
Dean, College of Physical Science,
Engineering, and Technology

____
Date

Articles of Agreement

1. All students under articulated agreements shall meet the prerequisites of the programs of study at UDC. These students must apply for admission through the regular admission procedure. All students who wish to enroll are admitted as they meet admissions requirements.

2. A transcript for each student will be verified by the participating high school principal or authorized administrator. This verification will be sent to UDC at the request of the student.

3. The amount of advanced standing credit will be determined by comparing the secondary school's competency record with the UDC course competency requirements as agreed upon in the articulation process (see attached addendum).

4. A student will receive advanced standing credit in a UDC course(s) for which there is an articulation agreement (to be developed). No challenge testing will be required by the college. If there is no articulation agreement, students can test out with UDC administered tests.

5. The student must register in a UDC program before articulated credit will be recorded on the transcript. Credit for articulated competencies will appear as advanced standing credit on the UDC transcript (to be developed).

6. These credits will apply toward completion of a UDC curriculum in place at the time the student enters UDC.

7. No more than one-third of the occupational specific credits and one-third of the total credits required toward completion of a program may be awarded as advanced standing credit.

8. UDC, in consultation with Phelps, will initiate an annual review of this Articulation Agreement. Changes to the competency task list and criteria will be made by mutual consent of participating faculties.

9. This agreement may be altered only by Phelps and UDC.

TECH PREP

The University of the District of Columbia
College of Physical Science, Engineering, and Technology
and
The Phelps Career Senior High School

Statement of Intent

The purpose of this Tech Prep agreement is to jointly develop a comprehensive, coordinated curriculum that begins at Phelps Career High School and proceeds into the Electronics and Mechanical Design Programs at the University of the District of Columbia (UDC).

Participating Institutions

We, the undersigned representatives of the listed institutions, agree in principle to this concept and agree to support the appropriate commitment of staff to assist in developing and coordinating curriculum necessary for a Tech Prep program.

Funding

The DC Public Schools (DCPS) and UDC seek continued funding for this project through the federal Carl Perkins Title II (Vocational Education) and Title III (Tech Prep) funding; the Department of Defense and Office of Education IDEA program grant; and appropriate city budget funding; and other grants as they are made available. The funding would include substitute pay, travel, supplies, duplicating, postage, and other related costs. In conjunction with UDC, DCPS will be responsible for providing leadership for the project and will serve as coordinator and fiscal agent.

In the event that funding becomes unavailable, the participating institutions agree to continue their support where possible by covering the costs associated with their participation (e.g., substitute pay, curriculum development costs, travel, and duplicating) for the duration of the project.

Planning/Implementation

Each participating institution will designate a liaison person whose responsibility will be to establish procedures necessary to carry out the program, appoint faculty curriculum committees, appoint an advisory/evaluation committee, and generally to act as a liaison between the participating institution and UDC.

Dean, College of Physical Science, Engineering, and Technology University of the District of Columbia	Principal Phelps Career Senior High School
Name of liaison person:	Name of liaison person:
Associate Dean, College of Physical Science, Engineering, and Technology University of the District of Columbia	Academy Coordinator Phelps Career Senior High School

ARTICULATED COMPETENCIES

It is agreed that the following courses and competencies will be accepted as an integral part of the agreement:

Communications/Electronics Cluster

Phelps	UDC
ELECTRONICS I Electrical Safety (interspersed) Vocabulary Electron Theory Symbols and Components Diagrams—Block, Schematic, Wiring DC Circuit Construction Color Code Metric Conversion Measurement (V, O, M) (DMM) Ohm's Law/ Watt's Law (Power) Series Circuit Construction/Analysis Kirchoff's Law Parallel Circuit Constr./Analysis Comb. Circuit Constr./Analysis Soldering	Fund. of Electrical Engineering Tech I Fund. of Electrical Engineering Tech II Electronic Shop Skills Technical Graphics Digital Logic & Digital Pulse Circuits Programming for Engineering Technology Electronics I Electronics II Microprocessors I Electronic Communications Electronic Troubleshooting and Prototyping Engineering Technology Seminar Electronics Electives Note: Additional university courses are required.
ELECTRONICS II AC Theory Components (Cap., Ind., Trans.) Reactance Impedance Measurement with Oscilloscope Solid State Devices Circuits: Power Supply Constr./Anal. Project: AC Adaptor Amplifier Constr./Anal. Project: Telephone Oscillator Constr./Anal. Project: AM/FM Receiver	

Communications/Electronics Cluster (cont'd.)

ELECTRONICS III Principles of Digital Electronics Principles of Fiber Optics Electronic Troubleshooting/Repair Servicing—Radio, TV, VCR, AV System FCC Requirements Transmitters	

Engineering Design Cluster

Phelps	UDC
Engineering, Drawing & Design 1	Fundamentals of Electrical Eng. Tech I
Technical Laboratory Skills	Fundamentals of Electrical Eng. Tech II
Engineering Design II	Electronic Shop Skills
Computer-Aided Design	Technical Graphics
Robotics, Production, & Manufacturing	Mechanical Shop Skills
	Programming for Engineering Technology
	Technical Mechanics
	HVAC I
	HVAC II
	Technical Dynamics
	Materials Technology
	Mechanical Systems
	Engineering Technology Seminar
	Mechanical Engineering Tech. Electives
	Note: Additional University courses are required.

APPENDIX 2

TEAM CONSENSUS AGREEMENT

The following members of the NCRVE Summer Institute from July 14 - 23, 1993 have succeeded in establishing a 4 + 2 + 2 Tech Prep program, through progressive articulation between the University of the District of Columbia and the Phelps Career High School of Washington, DC.

We, the undersigned, are committed to the implementation of this program, and do hereby submit this document for initial application during the 1993-94 school year.

Representing the District of Columbia Public Schools:

Cynthia M. Bell
Dr. Cynthia M. Bell
Assistant Superintendent for Vocational and Adult Education

Judy Fredette
Judy Fredette
Tech Prep Coordinator

Representing the Phelps Career Senior High School:

V. Lisa Savoy
V. Lisa Savoy
Assistant to the Principal

Nedra S. Jones
Nedra Jones, Guidance Counselor
LLEAP Coordinator

Oscar E. Lewis
Lieutenant Colonel Oscar E. Lewis
Academy Coordinator

Lora I. Ager
Lora Ager
Mathematics Instructor

Kenneth Green
Kenneth Green
Electronics Instructor

Representing the University of the District of Columbia:

Alfred O. Taylor Jr.
Alfred O. Taylor, Jr., Associate Dean
College of Physical Science, Engineering, and Technology

Cal Brook
Calvin Brooks, Chairman
Mechanical Engineering

John Reed, Assistant Professor
Electrical Engineering Technology

Linda Lewis
Linda Lewis, Assistant Professor
Mathematics

Edward B. Jones
Edward Jones, Director
Center for Academic Advising

APPENDIX 3:
POTENTIAL BUSINESS PARTNERS

- C & P Telephone
- Pepco (Potomac Electric Company)
- Metro (Transit)
- Xerox
- IBM
- Canon
- Safeway (Scanning Registers)
- Giant Food Stores
- National Institute of Health (NIH)
- Government Agencies

APPENDIX 4:
POTENTIAL COMMUNITY PARTNERS

- Churches
- Alumni Associations
- Sororities and Fraternities
- Masonic Groups
- Big Brothers and Sisters
- Concerned Black Men
- 100 Black Men
- Advisory Neighborhood Commissioners
- UDC Mentors
- Peer Tutors

APPENDIX 5:
STAFFING REQUIREMENTS FOR PHELPS ACADEMIES

The following personnel will be assigned and dedicated to the IDEA Tech Prep Program:

Coordinator/administrator	1 staff member
JROTC	2
Electronics	2
Engineering Design	2
English	2
Life skills/career development	1
Government/history	1
Math	1
Science	1
Art/Music	1
Physical Education	1

One of the two JROTC instructors will be the Project Director. He will be the point of contact for the program, and will report to Colonel George T. Hudgens, Director of Military Science, District of Columbia Public Schools (DCPS).

The Project Director will be assisted by one of the two electronics instructors and one of the two engineering design instructors, who will be Assistant Directors. In Year 1, DCPS will supply all of the personnel listed above, except for the following staff members who will be retired military instructors provided by the Department of Defense under this project.

Coordinator/administrator	1
JROTC	1
Electronics	1
Engineering Design	1

In Year 2, additional retired military instructors will be required in the following areas:

JROTC	1
Electronics	1
Engineering Design	1
English	1
Math	1
Science	1

EQUIPMENT REQUIREMENTS FOR PHELPS ACADEMIES

In Year 1, IDEA will require the acquisition of the following:

1. 30 microcomputer workstations, for use by students in both career clusters.
2. A local area network server, for use by students in both career clusters.
3. A print/plot server, for use by the engineering design students to print/plot drawings, and for use by the electronics students to plot diagrams.
4. A plotter, for use by the engineering design students to print/plot drawings, and for use by the electronics students to plot diagrams.
5. A communications server, for use by all IDEA students to perform on-line literature searches.
6. Local area network software, for use by students in both career clusters.
7. Computer-assisted teaching software in math and science, for teaching basic skills to all IDEA students.
8. Communications software, for use by all IDEA students to perform on-line literature.
9. Upgrades to the CAD/CAM software, for use by engineering design students.
10. Project management software, for use by the core IDEA staff in administering the project.
11. Minor renovations to the laboratory space to enable the installation of the Local Area Networks (LANs).

APPENDIX 6:
NEAR TERM OVERALL PROGRESS BENCHMARKS

Phelps/UDC math, physics, chemistry, and biology teachers will be provided with one set of appropriate Applied Academic modules. Phelps/UDC mathematics, Principles of Technology, and ABC instructors in Applied Academics (CORD) will be trained and Phelps/UDC Principles of Technology, Applied Biology and Chemistry labs, and math classrooms will be equipped with complete Applied Academics Lab sets. The following goals have been set for the first months of the program:

- Pre-planned and scheduled coordination/planning meetings between UDC and Phelps team for the 1993-1994 school year to begin not later than September 1993.
- Interdisciplinary curriculum planning meeting between Phelps/UDC team, vocational, academic, and leadership development teachers in August 1993.
- Tech Prep briefing to Phelps principal and staff in August 1993 or early September 1993.
- Development and publication of a Phelps Career Academy flyer and brochure by December 1, 1993.
- Draft letter for career academy students by September 1, 1993.
- Draft letter for parents of potential career academy students by September 1, 1993.
- Briefing prepared for parents and students on Phelps Career Academy by September 1, 1993.
- Develop detailed articulation agreement; that is, course-to-course, technical college credit, program-to-program, between UDC and Phelps by December 31, 1993.
- Define career map programs between UDC and Phelps for students at Phelps in engineering and electronics clusters during the 1993-1994 school year.
- Prepare a career academy information sheet by September 1, 1993.
- Schedule first follow-up meeting to Berkeley workshop by November 15, 1993.
- Prepare career academy briefing to be presented to industry partners by September 15, 1993.
- Determine career academy laboratory renovation requirements to be carried out at Phelps High School by September 1, 1993 (Engineering, Electronics, Leadership Development, Mathematics).

Guidance and Counseling Implementation Plan

Objective:

Each student will be provided with individual/group career guidance to facilitate each student's preparation either for entry to postsecondary learning environments or the world of work. These include the following:

- Individual counseling
- Career planning
- Assessment inventory
- Attending career fairs
- Attending field trips
- Understanding military options
- Understanding employment trends

Upon entry of program and no later than December 1993, all participants will have completed their first year career plans and signed a Full Value Program contract. Students will be seen no less than six times for individual counseling sessions and the final yearly exit review of the Career Plan to be done by June 1, 1994.

Timelines:

- December 1993–Students agree to Full Value Program contract
- June 1994–Review of yearly career plan

Persons Responsible for Implementation:

- Grade level guidance counselor (10th grade)
- Project counselor assigned to Tech Prep program

Other Groups Involved:

- Career placement specialists
- Teachers of employability

- Recruitment personnel at UDC
- Academic counselors at UDC

Resources and Technical Assistance That Are Needed:

- Career Assessment Unit, DCPS
- UDC Career Placement specialist
- UDC financial aid office
- Department chairperson from UDC Electronics and Engineering departments
- PEPCO Office of Personnel

Intended Outcomes:

- Increase the number of students enrolled in Tech Prep.
- Increase the number of students enrolling in postsecondary education.
- Increase the number of students with job-readiness skills for immediate full-time employment upon completion of Phase I of the Tech Prep program.

Means of Assessment and Evaluation:

- Number of students completing Phase I (graduation) of Tech Prep.
- Number of students placed in full-time employment based on senior survey document supplied by DCPS Office of Student Services.
- Number of students enrolled into the UDC Engineering and Electronics program of study supplied by UDC Office of Admissions.

Student Assessment Implementation Plan

Objectives:

- To establish a system to compare monthly attendance rates as a means of measuring academic success and retention.
- To establish a program to ensure that all components include a written report as part of its terminal objectives.

Timeline: January 1994 at the latest

Persons Responsible for Implementation:

- Counselors
- Instructors
- Administration

Other Groups Involved:

- Other faculty and staff
- Curriculum specialists
- Local Education Agency (LEA)

Resources and Technical Assistance That Is Needed: State Education Agency (SEA)

Intended Outcomes: Systems that monitor and correct the direction of students to ensure success.

Means of Assessment and Evaluation: Comparisons of empirical data.

Staff Development Implementation Plan

Objective: Staff development for Phelps/UDC Tech Prep Team.

Timelines (tentative):

- September 1993–Meeting for LLEAP and NCRVE teams.
- October 1993–Presentation at Phelps and UDC faculty meetings.
- November 1993–In-depth informational workshop about the Phelps Career Academy and Tech Prep.
- January 1994–Learning Styles Workshop.
- February 1994–Applied Academics Methods classes begin (graduate level).

Persons Responsible for Implementation and Recruitment:

- Oscar Lewis
- Alfred Taylor
- Loretta Cherry
- V. Lisa Savoy
- Judy Fredette
- Dr. Cynthia Bell

Other Groups Involved: Staff Development and Recertification Offices of DCPS

Resources or Technical Assistance Needed:

- Meeting space
- Copy services for documents to be shared
- Option to contact NCRVE liaison or State Vocational Education office
- Funding for payment of outside presenters

Intended Outcomes:

- Common understanding of the Tech Prep program (and components) and the full implementation of Tech Prep within the Academy.
- Understanding of Tech Prep by the faculty and staff of UDC and an appreciation of its value to the institution.
- Preparation of UDC staff for implementation of the postsecondary phase of Tech Prep.

Means of Assessment and Evaluation:

- Evaluation form of the joint workshop
- Written/oral review of basic terminology and concepts
- Improved teacher evaluation results

Program Evaluation Implementation Plan

Objectives:

- To establish a system that identifies what and how data will be collected for evaluation purposes.
- To develop a system for program monitoring.

Timeline: January 1994

Persons Responsible for Implementation:

- Counseling Unit
- Division of Information Research and Management

Other Groups Involved:

- Administration
- UDC Office of Planning and Research
- College of Physical Science, Engineering, and Technology Research Committee

Resources and Technical Assistance That Is Needed: Research consultants (internal and external)

Intended Outcomes: A systematic effort to obtain empirical data for continued improvement and success of the program.

Means of Assessment and Evaluation: Comparison to benchmarks.

Marketing Implementation Plan

Objective: To promote, inform, and recruit.

Timelines:

- Short-term: August 1993
- Long-term: January 1994

Persons Responsible for Implementation:

- IDEA Tech Prep Office
- Members of Phelps LLEAP and NCRVE 1993 Institute Teams

Other Groups Involved: DCPS Office of Communication

Resources and Technical Assistance That Is Needed: Funding and technical assistance for layout, printing, composition, and so on.

Intended Outcomes: Commitment and involvement from each component of the Tech Prep audience.

Means of Assessment and Evaluation:

- Increased interest and enrollment of students
- Positive feedback from the business community
- Increased inquiries for information and involvement from faculty outside Tech Prep.

Curriculum Implementation Plan

Objective: Integration will be achieved through regular conferences between laboratory and academic instructors.

Timelines:

August 1993

- Curriculum planning meeting between Phelps/UDC team, vocational, academic, and leadership development teachers.

September 1993

- CORD modules will be used in mathematics courses.
- Technical reading and writing will be a required component of the English curriculum.
- Review and revision of the electronics and engineering design courses will be made by the Phelps/UDC team.
- Junior and senior projects judged by UDC partners will be used to integrate technical and communications skills.
- The leadership courses will provide community service hours as well as structured activities.

September 1994

- CORD modules will be used in Biology. Principles of Technology will be instituted.

Persons Responsible for Implementation: Phelps/UDC team and other faculty

Resources and Technical Assistance That Is Needed: Business, industry, trade, professional entities, parents, and members of the community

Intended Outcomes: An integrated curriculum using strategies applicable to English, math, science, electronics, and engineering design.

Means of Assessment and Evaluation: A system will be developed to evaluate program components.

Partnerships Implementation Plan

Objective: To provide advisory, work related, and financial expertise and support.

Timeline: September 1993

Persons Responsible for Implementation: Tech Prep Project Director's Office

Other Groups Involved:

- Project Accord
- DCPS Business Advisory Committee
- DC Private Industry Council

Resources and Technical Assistance That Is Needed: Meeting Space

Intended Outcomes:

- Increase in work-related program participants.
- Increase in student placements.

Means of Assessment and Evaluation:

- Number of structured support programs created.
- Number of work-related opportunities provided.
- Amount of equipment and financial support pledged and given.

APPENDIX 7

IDEA

Phelps
IDEA
+
TECH
PREP
Larry

+ AAS Degree at UDC =

Better Jobs
College Degree
Leadership Skills
Advanced Technical Skills
Advanced Academic Skills
A Career for the Future

Integrated Design and Electronics Academy

The New Tech Prep Program at

Phelps Career High School

leading to
a college degree at the

University of the District of Columbia

and

Job Placement in High-Tech Careers

Enroll Now !

Begins **September 1993** at Phelps Career High School
Study Electronics or Engineering Design

Benefits:
- Increased Skill Development
- Leadership Development
- Career Focus
- Advanced Academic Skills
- UDC Entrance Preparation
- Business and Industry Contacts
- State-of-the-Art Job Preparation
- Internships, Mentors, Membership in Career/Professional Organizations

Name: ______________________ Telephone: ( ) -
Address: ______________________________________

School attended during 1992-93: ______________ Grade in Sept., '93: ____
Program of interest ____ Electronics
____ Engineering Design

District of Columbia Public Schools **Vocational & Adult Education Branch**

APPENDIX 8:
Glossary of Terms

AAS Degree: Associate of Applied Science.

Articulation: A verbal or written agreement between institutions for the purpose of linking programs of study.

Career Cluster: A group of courses centered around a common profession or occupation.

Commissioned and Non-Commissioned Officer: An officer of the armed forces holding by a commission a rank of second lieutenant or ensign or above.

Consortia: Collaborative arrangements between educational institutions.

e-mail: Computer to computer transfer of information.

Focus: A center of interest or activity.

Full Value Contract: The concept of a group or team acceptance of a plan or idea.

Integration: Bring together, making a whole.

JROTC: Junior Reserve Officer Training Corps.

Leader: A person playing a principal role.

Mentoring: Giving advice and guidance.

Military Science: Relating to armed forces study and theoretical explanation of strategy and maneuvers.

Partnership: One who is associated with another in shared activity.

Shadowing: Following a person around for the purpose of learning a task.

Strategies: A plan of action for obtaining a goal.

Technology: The application of scientific knowledge.

HEALTH CAREERS CENTER
CUYAHOGA COMMUNITY COLLEGE
CLEVELAND, OHIO

Planning Document Developed at the NCRVE 1993 National Institute:
"Establishing Integrated Tech Prep Programs in Urban Schools"*
July 14-23, 1993

BACKGROUND INFORMATION

Increasingly ignored as a viable path to lifelong learning and success, vocational education struggles to exist in a society that primarily values college preparatory programs at the secondary level. The reality, however, is that many young people today have neither the desire nor the financial resources to pursue a baccalaureate degree. In a community of largely at-risk students, a Tech Prep program that can prepare students for a highly skilled technical occupation is a necessity. A Tech Prep education can both instill in students the necessary skills and knowledge necessary to meet the challenges of an ever-changing workforce and establish an effective school-community networking system that will increase public awareness of the changing complexities of the workplace.

Rapid advances in technology and heightened global economic competition demand increased technical skill levels of youth entering the workforce. In addition, a recently developed environmental scan indicated a need to expand opportunities for technicians in the health care field. As a result, Cleveland Public School's Health Careers Center (HCC) has formed a partnership with Cuyahoga Community College (CCC), a postsecondary institution which for over two years has worked in collaboration with eleven vocational districts representing 73 high schools (forming the North Coast Tech Prep Consortium). CCC's partnership with HCC forms the Health Careers Tech Prep team within the North Coast consortium. This team represents the consortium's initial effort to expand its Tech Prep initiative into the health careers.

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* This is a working paper. It has not been reviewed by either the NCRVE or the educational institutions/agencies where the authors are employed. Therefore, this paper represents the views of the authors only.

As one of the largest vocational magnet schools serving 320 students (74% African-American, 15% Caucasian, 11% Hispanic) in grades nine through twelve, HCC offers all academic courses necessary to meet the Ohio graduation standards as well as the following seven individual vocational programs:

1. Diversified Health
2. Dental Assisting
3. Dental Lab Assisting
4. Medical Assisting
5. Medical Lab Assisting
6. Operating Room Assisting
7. Optical Lab Assisting

In each of these programs, students gain practical experience, earn a state vocational certificate, and complete college prerequisites while earning a high school diploma. The instructional program consists of hands-on experiences, shadowing, clinicals, presentations by professionals in the fields, and other exposure to health care careers. Through cooperative planning, teacher resource guides are being developed demonstrating the application strategies used by both vocational and academic teachers to ensure the competencies are attained.

Cuyahoga Community College, whose metropolitan campus is conveniently located one mile from HCC, offers more health career programs than any other two-year college in Ohio. CCC is a comprehensive community college with three campuses in Cuyahoga County. Over the course of a year, student enrollment at CCC is over 40,000. Among CCC students, 70% are part-time, 65% are female, 28% are minority, and the average age is 30. Overall, there are 66 associate degree programs, 26 of which are health career related.

MEMBERS OF THE INTEGRATED TECH PREP TEAM

The members of the Health Technologies Tech Prep planning team are administrators, counselors, and vocational and academic teachers from HCC and CCC.

HCC

- Phillip Frate, Assistant Principal
- Mitchell Bienia, Head of Guidance Department
- Helen Naujoks, English Instructor
- Theresa Scott, Dental Assisting Vocational Instructor
- Coretha West, Medical Assisting/Computer Science Instructor

CCC

- Michael Bailis, Director, Vocational and Technical Education
- Pearl Johnson, Dental Assisting Preceptor
- Rebecca Kapley, Assistant Professor of Biology
- Deborah Massari, Chairperson of Math Curriculum Tech Prep Team, NCTPC, and Mathematics Instructor
- Peter Ross, Director of Counseling and Psychclogical Services

Also assisting with the writing of the team's plan is Cathy Scruggs from Ohio's State Department of Education.

The Health Technologies Tech Prep team will eventually include additional vocational and academic instructors from both HCC and CCC. The team will also include the resources of parents, students, and local business persons. In addition, the team will work closely with representatives of the larger consortium, who will provide the team with staff support and overall program continuity for the Tech Prep program.

Each member of the Health Careers Tech Prep team will play a key role in the implementation of the Tech Prep program. Administrators at both HCC and CCC will provide a master schedule that will support a learning sequence for the Tech Prep students and will arrange common planning time for instructors. Counselors will provide recruiting and career advising strategies. The Tech Prep Coordinator will act as a liaison among HCC, CCC, and the state, as well as assist in the implementation of the Tech Prep program. Academic and technical instructors will establish, develop, integrate, and implement the Health Technologies Tech Prep curriculum, with parents and students serving in an advisory capacity.

PHILOSOPHY

A community-wide cooperative effort will develop and direct a total educational Health Technologies Tech Prep program at HCC in partnership with North Coast Tech Prep Consortium (NCTPC) to maximize, through integration, the vocational and academic proficiencies of those students interested in pursuing health careers positions.

DEFINING TERMS

The Health Technologies Tech Prep planning team defines some important terms as follows:

Tech Prep

Competency-based program of combined secondary and postsecondary educational and occupational experiences that includes a common core of required proficiency in math, science, communication, and health technologies designed to lead to an associate degree or certificate.

Tech Prep student

A student enrolled in the eleventh-grade technical component of a funded Tech Prep consortium's identified curricular sequence.

Tech Prep completer

A student who successfully completes the Tech Prep course sequence and receives an associate degree.

Tech Prep resources

Time, energy, skills, money, and people needed to implement and maintain a Tech Prep program.

Integration

The coalescence of vocational and academic curricula to create a matrix of outcome-based instruction which is vertically and horizontally aligned to form a well-designed and well-articulated health careers cluster curriculum. Integration blurs the distinctions between vocational and academic education.

Applied instruction

Instruction that is rooted in a vocational or academic discipline that incorporates, within its course structure, elements from other disciplines which enhance the learning of the discipline area.

All aspects of the industry

Addresses the occupational, academic, and employability skills that are defined by health care representatives.

Occupational skills

Knowledge, skills, and attitudes required for employment and retention in a given occupation or occupational cluster.

Academic skills

The math, communication, and science competencies needed to be a successful health technician.

Employability skills

Decision-making and problem-solving skills (see Ohio Competency Analysis Profile [OCAP]).

Local agencies, businesses, and industries

Include all the local constituents in the communities represented by the members of the North Coast Tech Prep Consortium.

At-risk students

Students who are physically disabled, academically handicapped, economically disadvantaged, and/or limited-English proficient (LEP).

Individual Career Plan (IPC)

A document that is revised annually (beginning at the end of eighth grade) and includes goals, courses, aptitude, and proficiency assessment data for a student. It is signed by a parent/guardian and completed under the guidance of a career counselor.

Unified application

Form used by students to select high school programs.

Health technologies cluster

Group of college health technology programs from which students may select a career direction.

Externship

Directed learning experiences for consortium staff in health care settings.

Internship

Directed learning experiences for students in health care settings.

Vocational Education Planning District (VEPD)

There are three types:
1. those configured around vocational centers
2. citywide districts (e.g., Cleveland)
3. compacts

Career Passport

A culminating portfolio of materials that support and document a student's competencies.

STUDENT OUTCOMES

The Health Technologies Tech Prep program is committed to maximizing the vocational and academic proficiencies of those students interested in pursuing a career in the health fields. In particular, the Health Careers Center/Cuyahoga Community College Health Technologies Tech Prep program will

- prepare students to enter CCC with college-level skills,
- increase student matriculation and degree completion,
- allow students to attain an increased level of employability, and
- increase student job retention.

Through an emphasis on lifelong learning in the Health Technologies Tech Prep program, students will gain knowledge and skills and attain competencies beyond the boundaries of traditional vocational programs by acquiring advanced technological and academic skills essential for competing successfully in a technical global society. Such skills include the problem-solving and technical skills specific to the students' selected health specialization. In order for these skills to be fostered, eleventh grade students must enter the Tech Prep program with core knowledge and skills. Core knowledge is knowledge that all students must obtain in order to pursue a specialization in a health career. This is accomplished through the integration of subject matter from a specific health cluster with related applied math, science, and English. Core skills are the desired competencies of a health cluster as compiled and agreed upon by the representatives from business/industry, OCAP, and other searches such as ERIC.

To attain these student outcomes, the Health Technologies Tech Prep program will address the following short- and long-term goals.

Short-Term Goals

- Establish a joint Health Technologies advisory committee to include parents, students, and secondary and postsecondary instructors.
- Complete a marketing plan.
- Establish a recruitment plan.
- Identify integrated Tech Prep team members from college and high school.
- Establish a master schedule that provides for integrated vocational and academic instruction.
- Develop articulation process between HCC and CCC.
- Identify liaison person at both the high school and college level.
- Add representatives from HCC to North Coast Tech Prep Consortia committees.
- Develop a staff development plan for HCC and CCC.
- Obtain active participation from site administrators at both HCC and CCC.
- Establish a commitment document to be signed by all levels of administration which provides for staffing and scheduling.
- Establish course sequences for Health Technologies Tech Prep program.
- Establish meeting time line for implementation, review, assessment, modification, and so on.
- Investigate possibilities for shared facilities.
- Identify and pursue funding resources.
- Establish counseling strategies.

Long-Term Goals

- Build health technology curricula.
- Establish written partnership with Greater Cleveland Hospital Association and other local health related agencies.
- Develop partnerships with relevant professional organizations, businesses, and industries.
- Increase the number of minority students who graduate from HCC and matriculate in CCC's health careers programs.
- Increase the number of minority students who graduate from CCC and enter a chosen health career path.
- Increase retention rate in health career program at HCC.
- Develop an elementary school component that will ensure that students who enter HCC will have appropriate academic preparation, an awareness of Tech Prep, and the development of initial individual career plans.
- Develop academic coursework at CCC that augments, at an advanced level, the integrated coursework offered in grades eleven and twelve at HCC.

ARTICULATION AGREEMENT

To ensure the viability of the Health Technologies Tech Prep program, the boards of Cleveland Public Schools and Cuyahoga Community College will develop and adopt an articulation agreement that will

- provide for commitment of administrators and staff to work on the project;
- commit institutional resources to maintain the program;
- address use of secondary and postsecondary shared facilities and resources;
- establish a joint advisory committee;
- establish recruitment goals;
- require use of developed curriculum;
- develop preferred placement for successful high school Tech Prep graduates to CCC's health careers programs; and
- implement CCC Tech Prep articulation transfer credit policy.

STRUCTURE OF THE PROGRAM

The program is structured to include the following students at the following times:

- 1993-1994 Students in the ninth-grade level
- 1994-1995 Ninth- and tenth-grade levels
- 1995-1996 Ninth-, tenth-, and eleventh-grade levels
- 1996-1997 Ninth-, tenth-, eleventh-, and twelfth-grade levels
- 1997-1998 First-year Allied Health prospective students at CCC
- 1998-1999 Second-year program students at CCC

The program will include faculty in disciplines required for completion of the program.

CURRICULUM

The Health Technologies curriculum will be delivered through a set of core and specialized competencies addressing mathematics, science, communications, and health technologies. The competencies will be identified and leveled through the Tech Prep Competency Profile (TCP) process involving business, industry, and labor representatives, as well as the vocational-technical and academic faculty members from both HCC and CCC.

The ninth- and tenth-grade curriculum will include the infusion of applied math, science, and English as a preparation for entering the eleventh-grade Tech Prep programs. The eleventh- and twelfth-grade curriculum will include the integration of math, science, and English as a preparation for entering college at the appropriate course level. The configuration and sequencing of these courses will allow students to fulfill graduation requirements in a timely manner.

The Health Careers Tech Prep program is designed to provide students with several entry and exit points to pursue a one-year certificate postsecondary education, a two-year Associate Degree program, a four-year Bachelor degree program, and/or work. (See flow chart in appendix.)

Health Technologies (Cluster) 9-12 Curriculum

Required Courses For High School Graduates

- English I, II, III, IV (applied/integrated)
- American History
- U.S. Government
- Social Studies Elective
- Tech Prep Math
- Algebra I (applied/integrated)
- Principles of Science (applied/integrated)
- Health
- Physical Education
- Fine Arts

Core Requirements

- Biology (applied/integrated)
- Algebra II (applied/integrated)
- Chemistry (applied/integrated)
- Medical Terminology
- Medical Ethics

Electives

- Computer Science
- Psychology/Sociology
- Physics

Approved courses of study are the basis for curriculum development for the integration of Tech Prep program competencies. Through cooperative planning, teacher resource guides have been and will be developed. These guides demonstrate the application strategies used by both the technical and academic teachers to ensure that competencies are attained. Supplementary curriculum activity packets, initiated and developed by teachers, are used, assessed, and revised as necessary. The following supplemental curriculum materials will be used as part of integration in the Tech Prep plan:

- Writing, vocabulary, and math components are presently structured to reinforce applied academics in the Tech Prep program. The vocabulary component provides students with the incorporation and reinforcement of Tech Prep vocabulary in the English classroom while providing specialized and sequenced word lists in each technical area. Along with specialized technical vocabulary, career preparation and job skill terminology are included to help students develop a vocabulary reflecting academic, technical, and situational/occupational terminology.
- The writing component, through a variety of writing products, will provide the students with opportunities to communicate in the language in which business is conducted. Job-related written communication skills are integrated into the technical and academic classrooms. Students compile a portfolio of technical writing products including business letters, résumés, job applications, and career search projects.
- The math component of the applied academics curriculum is taught through a variety of activities and projects written to mirror technical situations in which students perform the mathematical functions necessary to succeed in the world of work. Activities and projects stress basic competencies, logical thinking, and incorporate interpersonal skills through cooperative learning.
- The science component of the applied academics curriculum is presently being developed.

In addition, CCC will endeavor to develop academic coursework which will augment the integrated academic coursework offered at HCC at a postsecondary level. Whenever possible, these courses will utilize the teaching methodologies that are part of the Tech Prep concept.

Work Experience

Tenth-grade students enrolled at HCC will rotate through six health programs, one week each, and have at least three days of shadowing experiences to help them choose their eleventh-grade course of study. In eleventh grade, students enrolled in a specific career program will spend at least three days of each semester shadowing professionals in a specified career to help them better understand their chosen health specialization. In twelfth grade, students will participate for one semester in a half-day paid internship in a health care clinical setting relevant to their program of study. The purpose of the internship is to provide students the opportunity to demonstrate competency in a controlled environment under the supervision of a licensed practitioner.

At CCC, students enrolled in each health care program will have a clinical experience in a licensed health care facility under a licensed health care professional in accordance with the college program requirements.

Senior Projects

As a culmination of the senior year, graduating students will do a senior project. The senior project will be composed of a fifteen minute oral presentation and demonstration of a skill acquired in the health technology specialty (e.g., Medical/Dental Assisting). The topic of the demonstration will be determined by the student. Materials and equipment will be used along with charts and diagrams to support the presentation. Evaluation criteria will be developed. Business and industry personnel will be used to evaluate the presentations.

AT-RISK POPULATIONS

In order to enable all participating students to achieve their educational goals, the Health Careers Tech Prep team will, within the limits of their abilities, provide tutoring, counseling, and other services required under the Americans with Disabilities Act (ADA) to those at-risk students who may need such services. The at-risk student population includes, but is not limited to

- students with physical and/or emotional disabilities,
- students functioning below grade level,
- learning disabled students,
- educable mentally retarded students,
- students needing remedial assistance (incoming),
- LEP students, and
- economically disadvantaged students.

Services currently exist at both HCC and CCC to address the needs of at-risk students. These services include liaison teachers for visually and hearing impaired students, tutors for students with learning disabilities, counseling and referral services for students with emotional disabilities, and interpreters for LEP students. Monitoring the delivery of these services will be an ongoing process for Tech Prep students.

RECRUITMENT

Recruitment will be a collaboration between HCC and CCC. Each institution will be responsible for the following:

- HCC Tech Prep recruitment strategies will be focused upon options which will be made part of the unified application form, participating in *Schools of Choice Night,* visiting middle schools, and presenting programs to other community organizations by faculty, counselors, students, and graduates; and
- CCC Tech Prep recruitment strategies will focus on recruitment visitation to HCC, site visitation to CCC by HCC students, accompanying HCC recruiters to *Schools of Choice Night*, and community organization meetings.

GUIDANCE AND COUNSELING

At both HCC and CCC, the Health Technology Tech Prep program will include a comprehensive career counseling component which will provide students with the following:

- Group guidance
- Individual career counseling
- Career options workshops
- Career decision-making courses
- Academic advising for program completion
- Articulation options
- Job search skills
- Investigative clinical experiences (through business/industry partnerships)

- Personal counseling
- Career interest assessments
- Individual career plan (ICP) development, assessment, and actualization

Student Selection Criteria

CCC counselors will assist HCC students in selecting and applying for programs. CCC will develop means for reviewing selection criteria to expedite admission of successful HCC Tech Prep students into CCC programs.

STAFF DEVELOPMENT

An initial overview of the Health Careers Tech Prep program will be presented to the administrators of HCC by the HCC Tech Prep team and the North Coast Tech Prep Coordinator. This overview will be followed by the education of the teachers, guidance counselors, and students on the Tech Prep plan. As a parallel activity, the Director of Vocational and Technical Education at CCC will update the Tech Prep Coordinator at CCC, who will be responsible for updating the administrators at CCC.

During a meeting of the HCC Tech Prep team members with the HCC administrators and the North Coast Tech Prep Coordinator, the support role to be fulfilled by the Cleveland Public Schools (CPS) and HCC administration will be explained. This will include programs, staffing, scheduling, and resource needs. In addition, there will be scheduled, periodic reports detailing the progress of the Tech Prep program.

Inservice meetings on applied pedagogy in both vocational and academic areas for both secondary and postsecondary educators will be provided. Inservice sessions on the developed Tech Prep curriculum will also be available. And, as a way of providing health career educators with current and updated information, externships in related positions in the community will be established.

PARTNERSHIPS

While existing partnerships will be continued, new partnerships will be formed to facilitate the implementation of the Health Technologies Tech Prep program. The Health Technologies Tech Prep program will develop an agreement with the Greater Cleveland Hospital Association and other health agencies that will provide

- support, review, and advice on curriculum;
- clinical sites for student internships;
- professional development opportunities for teachers and counselors;
- assessment of integrated learning experiences;
- assistance in increasing minority enrollment in the program;
- industry personnel to serve as speakers, mentors, and recruitment resources;
- assistance in training and assessment of employability skills; and
- assistance in placing graduates in jobs in chosen careers.

The Health Technologies Tech Prep program will include an Abatement Partnership that will pursue an agreement with the city of Cleveland and county government requiring businesses which receive tax abatements to provide externships for faculty, internships for students, and job opportunities for Tech Prep students.

In addition, the Health Technologies Tech Prep program will develop a partnership agreement with the Urban League which will provide assistance in working with African-American community institutions to support goals of Tech Prep. Tech Prep staff will approach the CCC Advisory Committee to create Tech Prep linkages with the Hispanic community.

BUSINESS/INDUSTRY PARTNERSHIPS

The NCTPC will pursue the following businesses and industry collaborations:

1. Greater Cleveland Hospital Association for the purpose of
    - shadowing,
    - mentoring,
    - advising,
    - providing job placement for graduates in their chosen health career path,
    - assisting in training and assessment of employability skills,
    - providing externship opportunities,
    - providing continuing education opportunities, and
    - advising with curriculum and program review.

2. Professional organizations
    - American Dental Association
    - North Coast Dental Association
    - National Dental Association
    - Cleveland Chapter of American Medical Association
    - Committee on Allied Health Education and Accreditation (CAHEA)
    - Other organizations that may assist with minority recruitment

3. Health Related Businesses
    - Dental labs
    - Medical/dental supplies
    - Private medical/dental offices

MARKETING

The Marketing Program for the Health Technologies Tech Prep Program will introduce, in a positive format, the Tech Prep concept and clearly articulate the advantages to students, parents, and other community components. Messages and materials utilized to promote the program will be developed so as to provide an honest, realistic, and clear understanding of the nature of the programs and the outcome options available to students upon graduation.

To achieve this objective, a marketing committee will be established to include

- college program staff,
- high school program staff,
- marketing and public information specialists from both CPS and CCC,
- industry representatives,
- Tech Prep consortium representatives, and
- parents.

In addition, efforts will be made to identify a market, develop print materials for distribution, develop media spots and public service announcements, and start an ad campaign after the Tech Prep program is developed, defined, and approved.

ASSESSMENT AND EVALUATION

Program Assessment

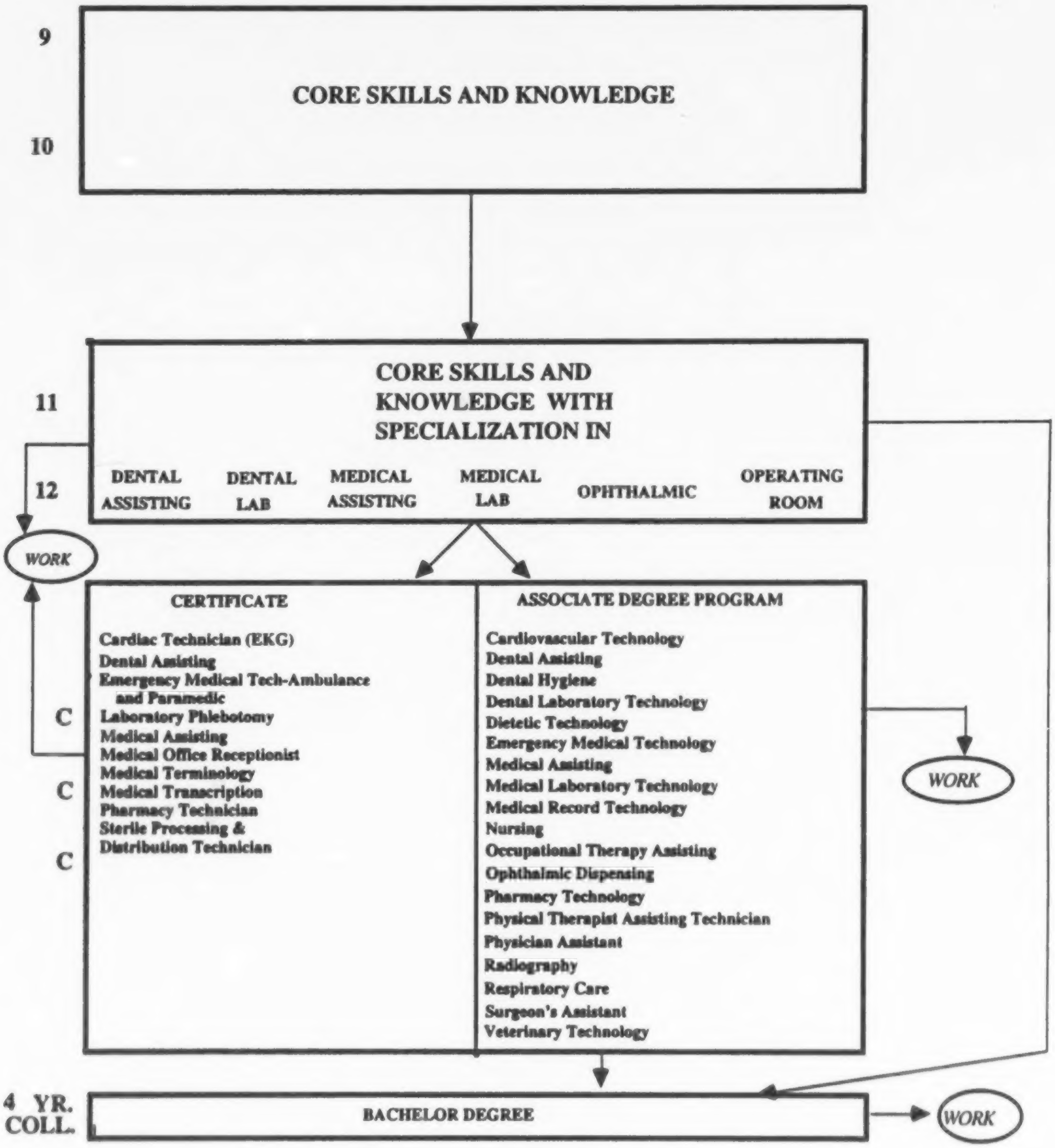
A panel of professionals from the health careers industry and high school faculty will assess student senior projects to determine student levels of competency. Additionally, students should be able to maintain a 2.0 GPA or better at HCC and CCC. Another measure of success of the Health Technologies Tech Prep program will be the ability of students from HCC to be placed in college-level math and English after testing by the campus assessment center.

Student Assessment

For completers of the 2+2 Tech Prep program the measures of success are

- completion of Health Technologies Associate degree program,
- passage of related license or certification exam,
- job-related employment,
- employer satisfaction, and
- student satisfaction with program preparation.

APPENDIX
HEALTH TECHNOLOGIES TECH PREP PROGRAM


9
10
CORE SKILLS AND KNOWLEDGE
11
12
CORE SKILLS AND KNOWLEDGE WITH SPECIALIZATION IN
DENTAL ASSISTING
DENTAL LAB
MEDICAL ASSISTING
MEDICAL LAB
OPHTHALMIC
OPERATING ROOM
WORK
CERTIFICATE
Cardiac Technician (EKG)
Dental Assisting
Emergency Medical Tech-Ambulance and Paramedic
Laboratory Phlebotomy
Medical Assisting
Medical Office Receptionist
Medical Terminology
Medical Transcription
Pharmacy Technician
Sterile Processing & Distribution Technician
C
C
C
ASSOCIATE DEGREE PROGRAM
Cardiovascular Technology
Dental Assisting
Dental Hygiene
Dental Laboratory Technology
Dietetic Technology
Emergency Medical Technology
Medical Assisting
Medical Laboratory Technology
Medical Record Technology
Nursing
Occupational Therapy Assisting
Ophthalmic Dispensing
Pharmacy Technology
Physical Therapist Assisting Technician
Physician Assistant
Radiography
Respiratory Care
Surgeon's Assistant
Veterinary Technology
WORK
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BACHELOR DEGREE
WORK

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Health Careers Center and Cuyahoga Community College

Planning Component: Curriculum

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
FACULTY OVERVIEW Introduce 9th-grade academic and health occupations teachers to Tech Prep concepts which focus on the preparation of students planning to enter the Tech Prep program.	August 1993	HCC Principal and Vice Principal; HCC Tech Prep health occupations teachers	Speakers or presenters from industry, businesses, and the health-related community; HCC Tech Prep team	To be determined.	Faculty focused on exposing and directing students to Tech Prep program	Number of students progressing to Tech Prep program
9th-GRADE GUIDANCE Create a student schedule course progression chart for each 9th-grade student. The charts will allow each student to see a possible four-year schedule at HCC leading to completion of the first phase of the Tech Prep program.	August 1993 - June 1994	HCC Guidance Counselors	HCC Principal and Assistant Principal	To be determined.	Students will be given a projected schedule for their years at HCC.	Each student will have a student schedule course progression chart.
9-12 CURRICULUM Develop a course progression chart to identify and list courses students must take from grade 9 to grade 12. This list will be presented to students and parents.	August 1993	Guidance Counselor	HCC Principal and teachers	Funds to develop and print charts	Students and parents will be informed of Tech Prep concepts and courses necessary to be a Tech Prep completer.	Number of Tech Prep completers who have been identified in the 9th grade

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Health Careers Center and Cuyahoga Community College

Planning Component: Curriculum (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
CURRICULUM CONTENT Plan inservice needs of 9th-grade applied vocational and academic teachers as to curriculum content, and establish future inservice schedule.	August 1993 - June 1994	HCC Tech Prep team liaison	State Tech Prep Curriculum Specialist and CCC math consultant	Math, English, and science district academic supervisors and State Tech Prep specialist	Review 9th-grade curriculum.	To be determined.
9th GRADE INSERVICE Provide inservice to vocational and academic teachers on curriculum content to inform and review present curriculum.	August 1993 - April 1994	Tech Prep Coordinator and Tech Prep team	Health community and teachers from other schools who can present to HCC teachers	Funds to be determined.	Commitment from teachers	A revised curriculum
MATHEMATICS Write a geometry module to be added to curriculum as alternative to trigonometry module.	August - December 1994	Consortium Math Committee	HCC Math instructors and HCC technical/vocational teachers	Math CPS Supervisors	Written Geometry module	Infusion of Geometry module into curriculum
COMPETENCY LISTS Compile the necessary materials to compose the competency lists for Tech Prep health programs.	October 1, 1993	HCC Health Tech Prep members	Medical Assisting Association, Dental Assisting Association, and Cuyahoga Community College Dental & Medical Assisting instructors (DACUM)	None	Gather enough materials to compose complete competency lists for medical assisting and dental assisting.	Complete collection of the competency lists materials

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Health Careers Center and Cuyahoga Community College

Planning Component: Curriculum (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
HEALTH TECHNOLOGIES COMPETENCIES Draft a set of competencies for health technologies cluster.	October 1 - November 30, 1993	State TP Curriculum Specialist will research and compile competency list.	HCC Tech Prep health technologies cluster expert and CCC Vocational Director	ERIC search and other statistical searches such as TCP database from other consortia.	A draft of competencies to present to industry	Response by industry in adjusting the competencies to reflect needs of workplace.
INTEGRATING CURRICULUM Hold a meeting between the 9th-grade math, science, and English academic teachers and the health occupation teachers to inservice them in the ways they can collaborate to form a project-oriented curriculum.	October 1 - November 30, 1993	Tech Prep team	Vocational/ Technical Supervisor and English, math, and science specialists	Diversified health objectives/ study outlines and Academic Teachers objectives/ study outlines	Teachers will work together to create a lesson that involves collaboration between diversified health teachers and academic teachers.	Teachers will use the lesson.
DRAFT COMPETENCY LISTS Hold a planned meeting to review competency draft lists for health technologies cluster.	December 1, 1993	Health Careers Tech Prep committee liaison, State Tech Prep curriculum coordinator, and CCC Vocational Education Director	CPS Technical-Vocational Director	Jane Addams Food/Beverage services	Review draft list, focus definitions of exit occupations, and brainstorm with industry representatives	Agreement on accuracy of draft list of competencies by CPS Technical Vocational Director, State Tech Prep Curriculum Specialist, and CCC Vocational Director

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Health Careers Center and Cuyahoga Community College

Planning Component: Curriculum (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
REVIEW COMPETENCY LISTS Plan a group meeting of December 1st TCP participants to review and finalize the competency lists that originated at the first meeting.	January 31, 1994	CCC Health Tech Prep Committee	CCC Technical/ Vocational Director, State Tech Prep Curriculum Specialist, Cleveland Vocational Director, and HCC Tech Prep team	Jane Addams Food Service Department	Review list, identify adjustments needed, and finalize arrangements for February TCP meetings.	Agree upon final draft to be presented to industry at TCP (Part I)
TCP PART I Hold a two-day meeting with business, industry, and labor representatives to present list originated at earlier meetings.	Sometime between February 7 and February 16, 1994	HCC Health Tech Prep team, CCC Tech Prep team, and State TP Curriculum Specialist	Administrators from HCC and CCC	Refreshments	Competency lists will be refined and agreed upon by consensus.	Completion of task (by consensus) on schedule and preparation for review by teachers
TCP PART II Hold a second meeting with impacted HCC/CCC teaching staff to level the competencies that were compiled by labor, industry, and business.	One-day meeting between Feb. 21 and 25, 1994 8:00-3:00	HCC and CCC Health Tech Prep teams; State Tech Prep Curriculum Specialist	Selected staff from HCC and CCC who will be impacted by the Health Technologies Tech Prep program	Food and beverages	HCC and CCC teachers will review and level the list of competencies in the given health technologies areas.	Teachers will complete the leveling process of the competency list on schedule and reach consensus.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Health Careers Center and Cuyahoga Community College

Planning Component: Curriculum (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
TCP PART III Hold a third meeting with business, industry, labor representatives, and selected staff from HCC and CCC to finalize the competency lists from previous meetings.	One-day meeting between Feb. 21 and 25, 1994 3:30-7:00	HCC and CCC Health Tech Prep teams; State Tech Prep Curriculum Specialist	Representatives from industry, business, and labor who attended the previous TCP meeting and selected CCC and HCC staff who attended the previous TCP meeting	Food and beverages and necessary equipment to implement the purpose of the meeting	Selected HCC and CCC teachers and reps. from business, industry, and labor will review the competency lists together and come to an agreement on one final list for each health technology field.	Groups involved will come to consensus on a final competency list for the health technological clusters that will be published and then implemented by HCC and CCC.
COMPETENCY LISTS Publish final Health Technologies competency lists.	April 4, 1993	Tech Prep Consortium Coordinator, HCC and CCC Health Tech Prep team representatives, and State Tech Prep Curriculum Specialist	HCC and CCC administrators and Vocational/ Technical Supervisor	Food and beverages	An agreement on the published list	A final competency list will be published for dental assisting and medical assisting clusters.
BIOLOGY Form biology course of study committee and establish schedule.	Begin Jan. 1994 & complete by Dec. 1994	HCC and CCC biology teachers and a Tech Prep liaison from both HCC and CCC	CPS Science Supervisor and Tech Prep Coordinator from North Coast Consortium	Existing courses of study for biology at HCC and CCC	Establish writing committee with a written schedule.	Written course of study for applied technology
CHEMISTRY Form chemistry course of study committee and establish meeting and writing schedule.	Begin Jan. 1994 & complete by Dec. 1994	HCC and CCC chemistry teachers and a Tech Prep liaison from both HCC and CCC	CPS Science Supervisor and Tech Prep Coordinator from North Coast Consortium	Current courses of study for chemistry at HCC and CC	Establish writing committee with a written schedule.	Written course of study for applied biology

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Health Careers Center and Cuyahoga Community College

Planning Component: Curriculum (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
11th & 12th GRADE CURRICULUM Develop a technical course of study for the technical components of the high school health technology cluster.	April - August 1994	Tech Prep team	CPS Vocational/ Technical Supervisor, State Tech Prep Curriculum Specialist, and applied academics teachers	Money for inservice (writing)	A technical course of study will be developed.	Integrated technical course of study will be utilized for health clusters.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Health Careers Center and Cuyahoga Community College

Planning Component: Curriculum (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
CURRICULUM INTEGRATION Develop instructional materials in English, Math, and Science to support Tech Prep program.	Science by June 1994; expand Math and English by Dec. 1993	Administration and Tech Prep Coordinator	Academic/Technical instructors	Money to pay teachers for inservice to develop materials	Emphasize reading, writing, science, and math using developed worksheets.	Completed materials to use in classroom
POSTSECONDARY APPLIED ACADEMICS Develop, at the postsecondary level, applied academic coursework that will serve as a continuance at advanced levels of the teaching methodologies that will augment the technical course work required to obtain an Associate Degree. Establish Curriculum Committee.	Curriculum Committee established by Sept. 1994; outline of applied academic coursework submitted for review to CCC curriculum committee by Sept. 1995; applied academic courses offered at CCC by 1996	Instructional math, science, and English faculty at CCC, Tech Prep Coordinator, and the Director of Curriculum Development at CCC	CCC's English, math, and science division heads and the English, math, and science counterpart groups	Assigned release time for course development	Academic coursework utilizing alternate teaching methodologies that will closely integrate with the technical components of the program	Courses will be developed and offered to meet designated timelines.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Health Careers Center and Cuyahoga Community College

Planning Component: Curriculum (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
10th-GRADE CURRICULUM Implement the 10th-grade program that will lead to the actual Tech Prep curriculum.	August 1994 - June 1995	HCC Administrators, HCC teachers involved in 10th-grade academic and diversified health Tech Prep concept development, and HCC Guidance Counselor	Vocational/ Technical Supervisor and supervisors in academic areas of English, math, and science	To be determined.	The curriculum that has been developed over the previous year will be put into effect; it will no longer be theory but a working reality.	Through inventory and assessment sheets, the HCC staff and 10th-grade students will judge the successful implementation of the curriculum.
ADMINISTRATIVE INSERVICE Inform CCC's & HCC's Administrators on how to implement a Tech Prep program by reviewing the Tech Prep plan, defining the various roles and responsibilities, and determining the various schedule and meeting timelines.	June - August 1995	CCC Tech Prep Consortium Coordinator, Tech Prep liaisons from HCC and CCC, State Tech Prep Department personnel, Technical/Vocational administrative representatives, and HCC and CCC administrators	Tech Prep team members	Inservice budget	Develop written plan for full implementation of the Tech Prep program.	Implement Health Tech Prep program.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Health Careers Center and Cuyahoga Community College

Planning Component: Curriculum (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
FULL IMPLEMENTATION Fully implement Health Careers Tech Prep program at HCC.	August 1995 - June 1996	HCC staff and administrators	CCC Health Tech Prep team and the Technical/ Vocational Supervisor	To be determined.	Program will be implemented.	Students enrollment in courses
Ensure that all students have a broad-based knowledge of career options available within the health fields and are aware of the field's career progression patterns.	1993 and ongoing	CCC Directors of Counseling and HCC counselors	Business and industry representatives and Heath Careers Program Managers	To be determined.	Produce a well-informed student able to make realistic career-based decisions.	To be determined.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Health Careers Center and Cuyahoga Community College

Planning Component: Marketing

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Form Tech Prep Marketing Task Force.	January 1994	Tech Prep Coordinator		To be determined.	Formulation of a Marketing Task Force.	To be determined.
Develop a marketing program to disseminate information.	March 1994	Tech Prep Coordinator and Task Force	Public Relations Department	To be determined.	Plan in place.	To be determined.
Identify types of materials and promotions for marketing.	June 1994	Tech Prep Coordinator	Public Relations Department	Public Relations, Media Development, Reprographics, and Graphics	Need identified.	To be determined.
Develop promotional material.	June 1994	Tech Prep Coordinator and Task Force	Public Relations Department	Public Relations, Media Development, Reprographics, and Graphics	Material developed.	To be determined.
Promote to targeted groups.	January 1994	Tech Prep Coordinator and Task Force	Plan implementers	Public Relations, Media Development, Reprographics, and Graphics	Plan implemented.	To be determined.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Health Careers Center and Cuyahoga Community College

Planning Component: Structure

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Confirm commitment to plan.	1993 and ongoing	HCC Principal, CCC Director of Vocational Education, and the Tech Prep staff	Health agencies, business, other faculty, and parents	Support of college vocational education office, CPS Technical/Vocational Office, NCTPC, and State of Ohio Department of Education	See program outcomes.	To be determined.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Health Careers Center and Cuyahoga Community College

Planning Component: Senior Project

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Have each graduating senior present a demonstration of a skill acquired in their career specialty.	April-May each year	Teacher will give guidance and direct the projects; seniors will design, construct, and present project.	Administration, business/industry partners will help evaluate presentation.	Funds for purchase of project materials	Demonstration will be presented.	Demonstration will be evaluated by panel composed of business/industry partners.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Health Careers Center and Cuyahoga Community College

Planning Component: Guidance and Counseling

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Explore career options, group guidance activities, and academic advancement.	September 1993 and ongoing	HCC Guidance Staff	CPS Guidance programs and Tech Prep Coordinator	To be determined.	Career awareness	Students will identify five career areas.
Conduct group guidance, individual counseling, and academic advising.	September 1994 and ongoing	HCC Guidance Staff	CPS Guidance programs and Tech Prep Coordinator	To be determined.	Career awareness and academic program progression	
Conduct group and individual career counseling and investigative clinical experience.	September 1995 and ongoing	HCC Guidance Staff	CPS Guidance programs and Tech Prep Coordinator	To be determined.	Career awareness and academic program progression	Students will confirm major.
Explore group counseling, career counseling, advising, job searching, skills development, and articulation options.	September 1996 and ongoing	HCC Guidance and CCC Counseling Departments	NCTPC Co-coordinator, HCC Guidance Staff, CCC Director of Counseling, and Tech Prep Coordinator	To be determined.	Student options identified and postsecondary direction defined by student.	Students will graduate from program.
Identify college matriculated Tech Prep students.	September 1997 and ongoing	CCC Director of Counseling	CCC Tech Prep Coordinator	To be determined.	Cohort group identified.	Students will enter CCC.
Assign and develop individual and group counseling activities, academic advising, and job search skills for Tech Prep students.	September 1997 and ongoing	CCC Director of Counseling	CCC Counseling faculty and Tech Prep Coordinator	To be determined.	Program progression monitored, career plans formalized, and job search skills developed.	Students will graduate from programs.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Health Careers Center and Cuyahoga Community College

Planning Component: Guidance and Counseling (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Insure that all students have a broad-based knowledge of the career options available within the health fields and are aware of the career progression in the field.	1993 and ongoing	CCC Directors of Counseling and HCC Counselor	Business and Industry and Health Career Program Managers	To be determined.	Produce a well-informed student able to make realistic career decisions based on a solid block of data.	To be determined.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Health Careers Center and Cuyahoga Community College

Planning Component: Staff Development

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Present and discuss Tech Prep plan developed at NCRVE with key administrators, teachers, guidance/ admission counselors at both the secondary and postsecondary levels.	By September 1993	HCC Tech Prep team; Director of Vocational and Technical Education at CCC	NCTPC Tech Prep Coordinator at CCC	Tech Prep video and draft of NCRVE plan	Establish the general purpose, plan, and resources needed in developing Tech Prep and answer questions; establish consensus of active support of TP plan for HCC.	Evaluation form for meeting
Expand articulation among the core group by holding meeting with principal, union representative, and council representative.	By end of second week of 1993-1994 school year	Tech Prep team		Tech Prep video and draft of NCRVE plan	All will accept the notions that a change is desired and that Tech Prep is the best way to achieve our goals.	Agreement by consensus
Orient the CCC Staff to the Tech Prep plan developed at NCRVE.	By August 30, 1993	Director of Vocational and Technical Education at CCC	NCTPC Tech Prep Coordinator at CCC	Tech Prep video and draft of NCRVE plan	Establish the general purpose, plan, and resources needed in developing Tech Prep and answer questions; establish consensus of active support of TP plan for HCC.	Evaluation form for meeting
Hold meeting between HCC Tech Prep team, CPS Vocational Director, and HCC Principal.	By July 27, 1993	HCC Tech Prep team	NCTPC Tech Prep Coordinator at CCC	Tech Prep video and draft of NCRVE plan	Establish the general purpose, plan, and resources needed in developing Tech Prep and answer questions; establish consensus of active support of TP plan for HCC.	Evaluation form for meeting

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Health Careers Center and Cuyahoga Community College

Planning Component: Staff Development (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Have CCC Vocational/ Technical Director update CCC staff on Tech Prep plan.	By August 30, 1993	Director of Vocational and Technical Education at CCC	NCTPC Tech Prep Coordinator at CCC	Tech Prep video and draft of NCRVE plan	Establish the general purpose, plan, and resources needed in developing Tech Prep and answer questions; establish consensus of active support of TP plan for HCC.	Evaluation form for meeting
Identify support roles and resources needed for administrators and team members.	September 27-30, 1993	Tech Prep Coordinator	Administrators and HCC Tech Prep team members	Amount of financial support needed to be determined	Administrators understand their roles in implementing the Tech Prep plan.	Evaluation form
Inform administration of scheduling needs of students and teachers.	During the week of October 25-29, 1993	HCC Guidance Counselor, Tech Prep Coordinator	Administration of HCC	None	Awareness of the need for appropriate scheduling	Evaluation form
Obtain upper school district administration approval of the Tech Prep concept/program at HCC.	October 1993	Principal, Tech Prep coordinator from HCC	Tech Prep team, faculty, students, PTO, and business community representative	Video, grant proposal, and media	Agreement to recognize Tech Prep and Superintendent's commitment to present the concept to city government officials and Cleveland School Board for adoption.	Program adopted by Cleveland City Government and School Board
Organize Professional Day at HCC centering around the Tech Prep theme.	March 1994	Tech Prep team and HCC Principal	HCC staff and Principal	Assistance from North Coast Consortium Tech Prep Coordinator	To reach consensus on a commitment to accept Tech Prep as a school strategy for education.	Consensus agreement

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Health Careers Center and Cuyahoga Community College

Planning Component: Staff Development (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Hold inservice on methods of instruction using applied pedagogy for all academic instructors in 11th and 12th grade at HCC.	During one of the 1993-1994 Profess. days	HCC Principal and Tech Prep Coordinator	To be determined.	To be determined.	Teach using an applied pedagogy approach	Evaluation form that includes questions involving value, clarity, and adaptability of material presented, commitment to implement ideas, and so on
Conduct a series of inservices on methods of instruction using applied pedagogy for CCC instructors of math, English, and science.	By June 30, 1994	Math Curriculum Chairperson of NCTPC and Tech Prep Coordinator	Math, English, and science division heads	Money to pay inservice presenters during a mandatory flex day; possibly provide continental breakfast and/or lunch	Demonstrate and discuss how to teach academics as applied courses	Evaluation form to include questions involving value, clarity, and adaptability of material presented, commitment to implementing ideas, and so on
Hold an inservice on methods of integration involving academic and technical teachers at HCC.	By Sept. 30, 1993	Tech Prep Team Coordinator and HCC Administration	To be determined.	Funds for teacher inservice and funds for presenters	Comprehension of materials and resources needed to develop integration curriculum for specific Tech Prep Health areas	Evaluation form
Hold an inservice on methods of integration involving Allied Health instructors and preceptors at CCC.	By June 30, 1994	Math Curriculum Chairperson of NCTPC, Tech Prep Coordinator, and CCC faculty	Division heads, preceptors, and program managers	Money to pay inservice presenters during a mandatory flex day; possibly provide continental breakfast and/or lunch	Teaching Allied Health courses through integrated curriculum	Evaluation form to include questions involving value of material presented, clarity, adaptability, commitment to implementing ideas, and so on

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Health Careers Center and Cuyahoga Community College

Planning Component: Staff Development (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Conduct a curriculum inservice of previously developed Tech Prep academic courses.	By December 1994	Tech Prep Coordinator	Math, Communications, and Biology Curriculum Chairpersons from NCTPC	Release time for presenters, free substitutes or pay for HCC teachers attending; possibly have continental breakfast, coffee, lunch	Ability to adapt course of study and curriculum guides within academic courses at HCC	Evaluation forms
Provide ongoing externships for teachers to explore the businesses and industries in related health careers.	Beginning Summer 1994 and ongoing	Teachers responsible for creating own externships; business and industry partners and Tech Prep Coordinator	Teachers	Substitute teachers if needed and direct involvement of business and industry	Current technical skills and knowledge acquired yearly by vocational teachers	Evaluation form completed by the teachers and business and industry personnel involved in externships.
Provide updates on Tech Prep plan and its progress in quarterly reports.	Quarterly reports begin with last calendar quarter of 1993	Tech Prep Coordinator and business/industry partners	Members of NCTPC	To be determined.	Release of current information	Sending out of Quarterly Reports

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Health Careers Center and Cuyahoga Community College

Planning Component: Recruitment

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Recruit students for the Health Technologies Tech Prep program.	January 1994 and ongoing	CPC Vocational Technical Division, CCC Recruitment and Admissions staff, CPC Guidance staff, and CPC Career Education staff	NCTPC Coordinator and CCC instructors	Materials developed by Market Committee (i.e., pamphlets, brochures, displays), large screen projector, and road show V.P.	Enroll students into Tech Prep program.	Students will enroll in the Tech Prep program.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Health Careers Center and Cuyahoga Community College

Planning Component: Articulation Agreement

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Have an articulation agreement between CPS and CCC for Health Technology Tech Prep program adopted by the boards of both institutions.	December 1993	Tech Prep team members, Tech Prep Coordinator, building Principal, CCC's Executive Vice President for Academic Student Affairs, and Directors of Vocational Education at CPS and CCC	Ohio Department of Education and Tech Prep staff	To be determined.	Signed articulation agreement	Written agreement

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Health Careers Center and Cuyahoga Community College

Planning Component: Work Experience Shadowing

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Establish sites.	September 1995	Tech Prep instructors	Health-related faculty	Transportation fund	All 11th-grade students will have a site at which they can conduct their shadowing experience.	List of possible shadowing sites
Provide opportunity for students to observe a professional in the workplace.	June 1996	Tech Prep instructors	Health-related faculty	Transportation fund	All 11th-grade students will be afforded a shadowing experience.	Student observation log of shadowing experiences
Identify and sign contract with work sites that provide students with work experience opportunities.	September 1996	Jobs for Ohio Graduates (JOGS) and Tech Prep instructors		Transportation fund (presently undetermined) and money for personnel travel expenses	A variety of relevant and exciting health-related work experience opportunities for students.	List of contracts depicting a range of sites for students to engage in work experiences
Have all HCC's Tech Prep students complete participation in a clinical setting relevant to their course of study.	January 1997	Jobs for Ohio Graduates (JOGS) and Tech Prep instructors		Money for transporting students to their work experience sites and money for personnel travel expenses	Site evaluation by supervisory staff will indicate student achievement at an 80% competency level.	Site evaluation form

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Health Careers Center and Cuyahoga Community College

Planning Component: Partnerships

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Form partnerships with Greater Cleveland hospitals, other community health care facilities, and businesses and industry.	June 1993	Tech Prep team	Professional organizations, NCTPC, and the Greater Cleveland Health Association (to act as broker in developing partnerships)	Funds for verbal and written communication	Signed partnership agreement	Signed partnership agreement
Meet with area business and industry professionals after adoption of partnership.	By end of January 1994	Tech Prep team	PTO, Student Council, faculty representatives, and college representatives	Video on Tech Prep	Acceptance of Tech Prep as reflected by results of questionnaire	A questionnaire that reveals professionals' understanding of Tech Prep and their desire to be included in the program
Hold a meeting with CCC and Greater Cleveland Hospital Association.	By end of February 1994	Tech Prep team	NCTPC Coordinator	To be determined.	Buy-in by Greater Cleveland Hospital Association	Agreement by Greater Cleveland Hospital Association to provide HCC technical skills, externships, and internships

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Health Careers Center and Cuyahoga Community College

Planning Component: Assessment

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Develop and implement an employer satisfaction survey.	June 1997 at HCC and June 1999 at CCC	Office of Planning and Evaluation and Tech Prep Coordinator	Consultation with Ohio Tech Prep staff and CPS Department of Research	To be determined.	80% of employers will indicate satisfaction with Tech Prep employees	Employer survey

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Health Careers Center and Cuyahoga Community College

Planning Component: Job Placement Services

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Increase job-related placement services for HCC graduates.	January 1997	Area Placement Coordinator (HCC)	Jobs for Ohio Graduates (JOGS)	To be determined.	Increase number of job-related placements by 10%.	Graduate survey

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Health Careers Center and Cuyahoga Community College

Planning Component: Student Selection Criteria

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Have CCC counselor work with students to focus on career area to which they will apply.	September 1996	CCC Admissions Counselor	Health Careers representatives and CCC program graduates	Career-related college materials and career decision-making materials	At least 60% of HCC students will choose a CCC Health Career program to complete their Tech Prep education.	Enrollment statistics at CCC of HCC graduates

MAYFIELD HIGH SCHOOL
DOÑA ANA BRANCH COMMUNITY COLLEGE
LAS CRUCES, NEW MEXICO

Planning Document Developed at the NCRVE 1993 National Institute:
"Establishing Integrated Tech Prep Programs in Urban Schools"[*]
July 14-23, 1993

INTRODUCTION

During the summer of 1993, a group of educators from the Doña Ana Tech Prep Consortium were privileged to represent the entire consortium at the NCRVE Summer Institute "Establishing Integrated Tech Prep Programs in Urban Schools."

The work that follows is a result of the work at that institute. The members of the team have taken the view that the establishment of Tech Prep is a "work in progress." We hope that it will serve as a point of departure for further conversations and efforts throughout the county. We offer this document that will serve as a springboard for the challenging work that is ahead of us, and we realize that there will be variations from the proposals presented. This is as it should be. We see Tech Prep as a dynamic process and hope that this proposal will be received by our colleagues in that spirit.

DESCRIPTION OF INTEGRATED TECH PREP TEAM

The Doña Ana Tech Prep Consortium (DATPC) team is composed of members that represent all aspects of the educational community who are contributing directly to the educational development of students in Doña Ana County. The membership includes secondary and postsecondary administration, faculty, and staff, with the formal inclusion of business partners in the near future. Programmatic leadership is provided through collaborative input from district high school and community college staff and advisory committees from Doña Ana Branch Community College and the public schools of Doña Ana County.

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[*] This is a working paper. It has not been reviewed by either the NCRVE or the educational institutions/agencies where the authors are employed. Therefore, this paper represents the views of the authors only.

Demonstration Site

As part of the original NCRVE proposal, the DATPC team suggested that area high schools be designated demonstration sites for the region and state.

A need exists within New Mexico for a functioning demonstration site to orient and educate inquiring school representatives. Since most Tech Prep initiatives in the state are at the planning or early implementation stages at best, a working model would be very reassuring and advantageous.

In particular, Mayfield High School will serve as a working demonstration model for an integrated curriculum involving all essential vocational and academic content. This includes three strands of delivery—Tech Prep, College Prep, and Occupational Prep—and various work-based learning components, including a self-contained academy. Other schools will serve to act as working models of specialty areas within identified clusters.

The initial recommendation for a demonstration school came from the New Mexico Tech Prep Advisory Committee in the fall of 1992. This official designation would satisfy a need that has existed in the state for several years.

The New Mexico State Department of Education, Vocational, Technical, and Adult Education Division will be expected to provide expertise, support, information dissemination, and assistance for demonstration schools. Host schools will arrange for tours, visits, and/or observations by other school teams; and designated individuals would be available to answer questions and provide guided assistance. The DATPC and local district will be responsible for providing printed material and video materials to visitors to a demonstration site.

The site demonstration model will conform to a timeline. In the fall of 1993, the state department and state advisory committee on Tech Prep will provide information to state districts as to the availability of the site. Concurrently, the DATPC will be responsible for printing the necessary material for dissemination among visitors. The Mayfield implementation team will be responsible for creating new material as will the administrations in other participating demonstration site schools.

In the spring of 1994, participating schools will open their doors to visitors. Although visitations will be the responsibility of the host administration, a general format could include the following:

- A brief meeting between host and visiting teams explaining the host program
- Visitation of classrooms
- Visiting with practicing teachers on their conference period (if applicable)
- A final "debriefing" meeting with the host Tech Prep coordinator

MEMBERS OF THE TECH PREP TEAM

Doña Ana Branch Community College (DABCC)

- Joan Pharr, Student Development Coordinator and Tech Prep Project Director
- Mike Elrod, Division Head, Business and Information Systems
- Greg Belcher, Welding Technology Coordinator
- Janet Phillips, Clinical Coordinator Radiologic Technology
- Karen Lowe, Math Instructor, Developmental Studies Program

Las Cruces Public Schools

- John Krause, Coordinator of Career, Vocational, and Technical Education

Mayfield High School

- Barbara DeLong, Assistant Principal, Building Coordinator of Tech Prep and Co-Chair of DATPC Curriculum Steering Committee
- Del Hansen, Assistant Principal, former State Chair of Tech Prep Advisory Committee, member DATPC Implementation Committee

- Jane Wilmes, English Instructor, Chair of Evaluation Committee
- Walter Greene, Science Department Chair
- Donna Hansen, Counselor, Yearbook Advisor, Student Activities Specialist
- JoBeth Hawk, Drafting Instructor, Chair of Marketing Committee

New Mexico Department of Education

- Lena Trujillo-Chávez, Tech Prep Coordinator

Doña Tech Prep Consortium Member Schools

- Hatch High School
- Gadsden High School
- Mt. Cristo Rey Challenge High School
- Santa Teresa High School
- Oñate High School
- Mayfield High School
- Las Cruces High School
- San Andres High School

Tech Prep Standing Committees

- Executive
- Implementation
- Curriculum
- Counseling
- Evaluation
- Marketing

Current Programs

DATPC has implemented portions of a Tech Prep program at both the community college and the secondary levels. At this time, applied academic courses exist at six of the eight consortium high schools. Additionally, 36 articulation agreements representing over 109 high school courses articulating into 12 DABCC programs exist between secondary schools and the community college.

As a logical outgrowth of articulation, the consortium has identified a career cluster and educational pathways approach to assisting students and parents in educational/career planning. Ninth and tenth graders will choose from among four career clusters for exploration; eleventh and twelfth graders will select from among three educational pathways for more specialized learning.

Junior and senior high school students within the DATPC can take some or all of their classes at the community college by enrolling in the Area Vocational School (AVS) concurrent enrollment program. They receive credit toward high school graduation and a college certificate or degree. Economically, students are well-served in this program because books and tuition are provided. In addition, AVS students are eligible upon graduation from high school to apply for a full tuition DABCC scholarship. The high schools and community college work together closely to assist in the transition of high school students into the college environment.

All four DABCC instructional divisions are utilizing Total Quality Management concepts to facilitate and enact continuous improvement. Through this process, every faculty member, program coordinator, and division head has input in revising, updating, and creating new courses and programs. The collegial interplay and collaboration among staff reinforces and strengthens our teamwork approach in curriculum development. Teaming proves to be invaluable in decision making and problem solving, thus empowering faculty and staff to control and shape their programs.

DABCC, a college with an emphasis on vocational/technical education, is well-suited to provide contextual learning. The majority of our programs are designed to simulate the actual working environment. For example, students in the welding program spend a significant amount of time performing actual hands-on layout and assembly of welding projects such as trailers. Students design, draw, and build those projects for clients. Classes are blocked together so that students experience a full working day; for example, a new student in welding would be in the welding class and lab from 7:30 to 4:00 Monday and Wednesday and from 7:30 to 12:30 on Friday. On Tuesdays and Thursdays, the students follow a traditional schedule to take their support classes. Integration is emphasized throughout the program; for example, math, drafting, blueprint reading, and layout design are all used in the welding context. While the structure and presentation of programs vary widely, the concepts of integration and contextual learning are utilized throughout the Technical Studies Division.

Another example which illustrates the programs at DABCC is the Business and Information Systems Division which provides instruction in various programs such as Computer Technology, Retail Marketing, Hospitality Services, and related Business Occupations. Integration of academics and skills training are evident in each occupational discipline within this division. Retail Marketing majors spend up to twenty hours a week working at cooperative education worksites established with business partners in the community. Students are immersed in their program of study, working to develop their skills in human relations/customer service, cashiering, stocking, marketing, sales, merchandising, and management. Classroom instruction is offered during the mornings and evenings each semester to accommodate students' work schedules.

A very recent development at DABCC is operated within the Allied Health Division and in cooperation with a local high school's program in Health Occupations. At the ninth or tenth-grade level, students will be able to take a high school course called "Introduction to Health Occupations." In the eleventh or twelfth grades, students will take a course called Health Technology. Health Technology will be taught on the high school campus by a member of the DABCC Allied Health faculty, thus allowing students to receive college credit for the DABCC courses in Medical Terminology and Math for Allied Health. Students will be enrolled in this course through the AVS program with tuition and books provided by the school district. It is expected that these courses, along with the applied academics courses, will lay the groundwork for a sequence of Allied Health courses designed to feed into the community college consistent with the Tech Prep approach.

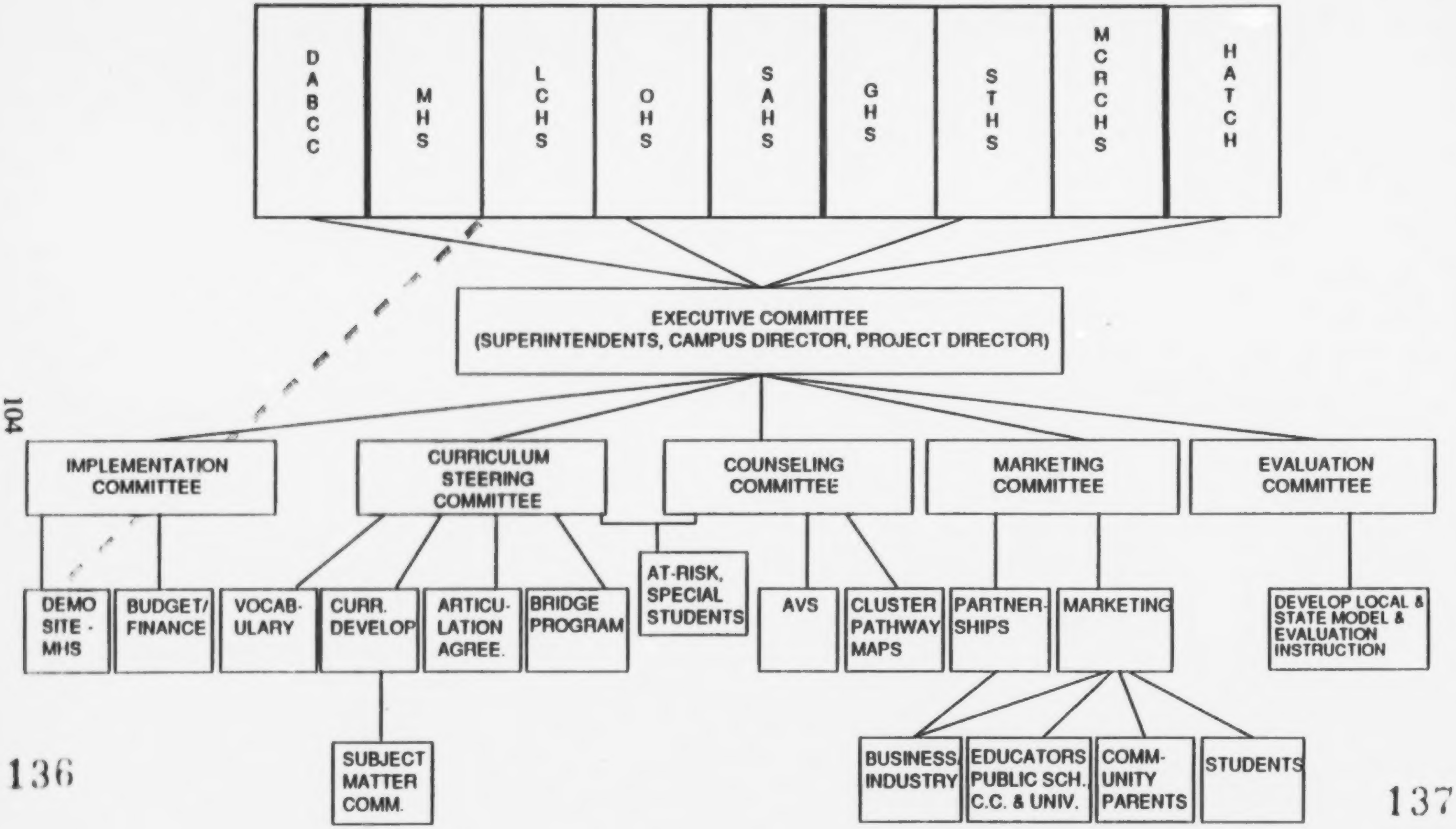
Results of a questionnaire developed by the National Center for Research in Vocational Education (NCRVE) indicate that the DATPC is well into the planning and development stages in working with accepted Tech Prep program components and in some areas has moved into the implementation stage. DATPC is fortunate to have the support of highly committed personnel who will continue to provide a high quality program to benefit students.

Areas of need include the following:

- Balanced support for the program by all area high schools
- Vocational and academic integration throughout the consortium
- Sufficient funding to maintain and enrich applied academic and vocational offerings
- Improved marketing
- Establishment of partnerships
- Increased emphasis on career guidance
- Parent, community, and faculty education
- Articulation efforts between Doña Ana Branch Community College and New Mexico State University (NMSU).

The consortium plan and the Tech Prep programs will work to address these needs.

ORGANIZATION OF THE DONA ANA TECH PREP CONSORTIUM


DABCC
MHS
LCHS
OHS
SAHS
GHS
STHS
MCRCHS
HATCH
EXECUTIVE COMMITTEE (SUPERINTENDENTS, CAMPUS DIRECTOR, PROJECT DIRECTOR)
IMPLEMENTATION COMMITTEE
CURRICULUM STEERING COMMITTEE
COUNSELING COMMITTEE
MARKETING COMMITTEE
EVALUATION COMMITTEE
DEMO SITE - MHS
BUDGET/ FINANCE
VOCAB- ULARY
CURR. DEVELOP
ARTICU- LATION AGREE.
BRIDGE PROGRAM
AT-RISK, SPECIAL STUDENTS
AVS
CLUSTER PATHWAY MAPS
PARTNER- SHIPS
MARKETING
DEVELOP LOCAL & STATE MODEL & EVALUATION INSTRUCTION
SUBJECT MATTER COMM.
BUSINESS/ INDUSTRY
EDUCATORS PUBLIC SCH. C.C. & UNIV.
COMM- UNITY PARENTS
STUDENTS

PHILOSOPHY

The Doña Ana Tech Prep Consortium (DATPC) will develop and implement a Tech Prep program empowering all students to become lifelong learners and successful members of a modern world class workforce.

STUDENT OUTCOMES

- Students will select and complete a career cluster and educational pathway enabling them to pursue their educational and career goals.
- Students will realize relevance of Tech Prep to future employment and earning capacity.
- Students will have a strong core of technical math, science, English, and writing.
- Student attendance rates will increase.
- Students will develop general employability skills as defined by New Mexico's Education System for Employability.
- Students will develop improved self-worth.
- Students will experience increased "school success" skills at the secondary and postsecondary level.

SHORT- AND LONG-TERM GOALS

Short-Term Goals

- Initiate the Marketing Plan in the Fall of 1993 by
    1. utilizing a career interest inventory for students,
    2. developing eighth-grade promotional materials, and
    3. developing a state and local campaign for disseminating Tech Prep information.
- Develop a statewide evaluation plan for Tech Prep by
    1. writing a funding proposal to be submitted to the state, and

2. designing an evaluation framework with all evaluation components and measures.

- Collect demographic and baseline information on participating students.
- Identify related positions needed to carry out a quality program.
- Develop a plan for routinely and thoroughly investigating resources from local state, federal, and private sectors.
- Initiate a staff development plan as stated in this document.
- Recruit business and community partners during the 1993-1994 school year to implement outreach strategies.
- Develop and seek funding for high school career academies which employ Tech Prep strategies to provide a core of vocational/academic education and work-based learning which would lead to alternate certificate or associate degree programs at DABCC.

Long-Term Goals

- Initiate a long-range plan for both secondary and postsecondary staff to deliver ongoing inservice training based on current research in Tech Prep.
- Develop a series of state approved evaluation instruments that assess formative outcomes, summative outcomes, and student progress.
- Enhance current curriculum using input from students and workforce.
- Influence university programs to include articulation with the community college and secondary education programs.
- Develop seamless curriculum procedures.
- Increase the number of students completing Tech Prep programs and becoming successfully employed.
- Initiate long-range viable procedures to insure constant evaluation and improvement of the Tech Prep plan.
- Develop a coherent long-range marketing plan.
- Recruit and develop business and community partners.
- Initiate a long-range plan to increase the numbers of students who enter postsecondary education after successful completion of high school.

STRUCTURE OF INTEGRATED TECH PREP PROGRAM

In Doña Ana County, Tech Prep begins in the middle schools with various career awareness and exploration activities and courses. One school, Sierra Middle School, already has a formal career exploration course as a mandatory component of its curriculum. Linking opportunities will occur through orientation, registration, and parent night activities, as well as a steady flow of newsletters and fliers from DATPC.

In high school, the pace alters dramatically. In ninth grade, students can begin taking Tech Prep curricula and can be referred by a teacher, counselor, parent, or self. At MHS, students will be encouraged to apply for acceptance into the MAAPS, or "Mayfield Academic Advanced Planning Society," where they will qualify for a multitude of Renaissance Program incentives if they accept some basic qualifying conditions. However, enrollment in all Tech Prep courses is open to all students, provided parents are directly involved in the process. (See appendix for full explanation of the MAAPS program.) Other schools may or may not want to initiate such a program.

In ninth grade, students have the opportunity to enroll in one core-basic course, Applied Math I. Due to limited lab opportunities, enrollment will be closely monitored. Students are referred to the class both by eighth-grade teachers and middle school counselors. If the student opts for MAAPS, he/she will be assigned an advisor and a mentor, and a four-year plan will be constructed, following the four career clusters. Other students will be similarly advised through normal guidance processes.

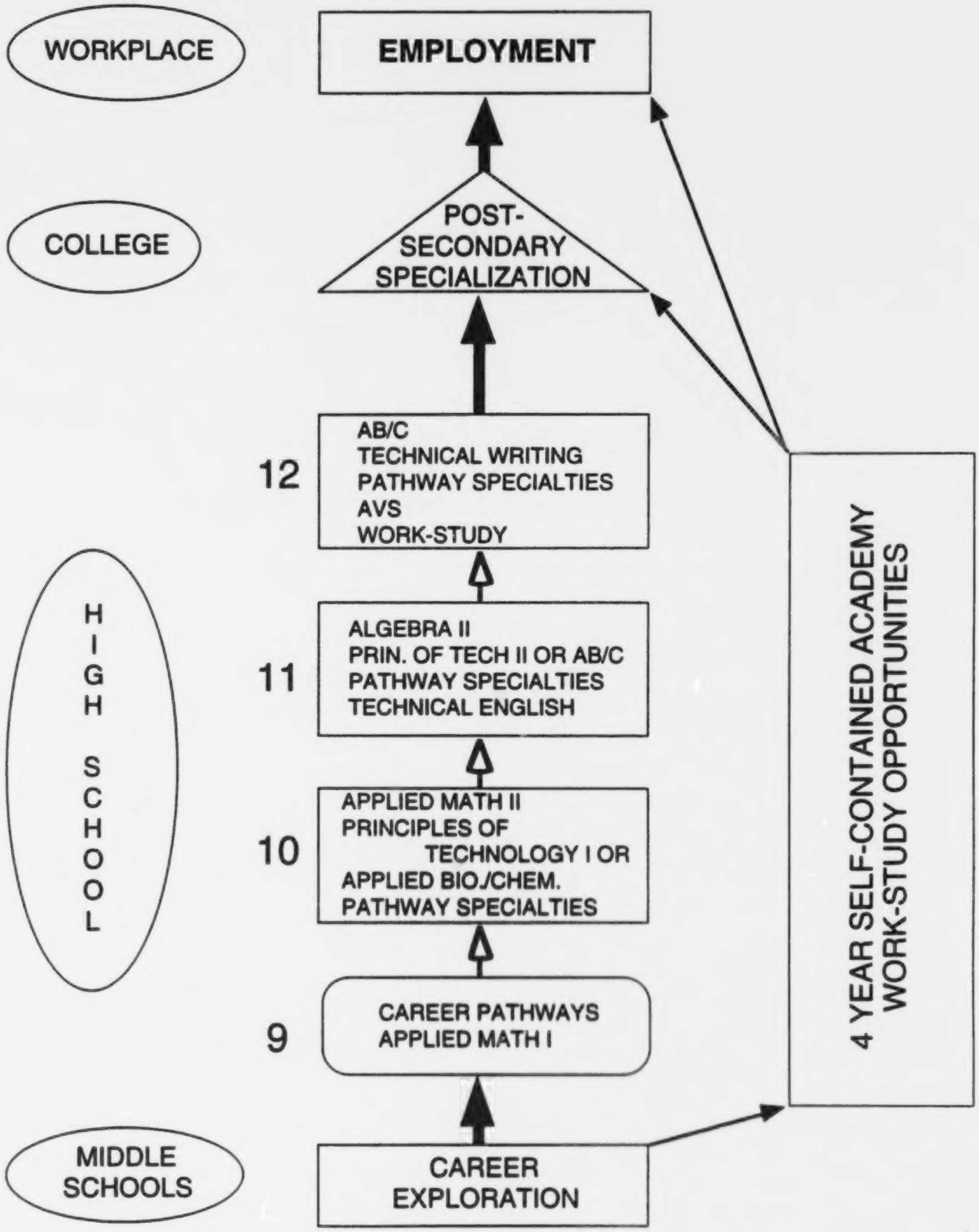
During the tenth-grade year, the student encounters a varied set of options. While continuing with applied math (Applied Math II) and beginning Principles of Technology I or Applied Biology/Chemistry, the student may begin taking applicable courses in the chosen career cluster. Advisement continues whether the student remains in MAAPS or not.

During the eleventh-grade year, the student should enroll in Algebra II, Technical English, Principles of Technology II, and/or Applied Biology/Chemistry. Continued specialization occurs in the chosen cluster area. In some instances, a student may choose to participate in the AVS program as a junior. Additionally, students may enroll in articulated courses, solidifying their academic ties with DABCC.

As a senior, the student will take Technical Writing and further specialize in the cluster area. Concurrent enrollment -AVS- is a solid option, as is enrollment in a variety of articulated courses and Experienced-Based Career Education and Learning (EXCEL) experiences. Students in MAAPS will attend a college night with representatives from DABCC.

Working parallel to but not separate from the previously explained Tech Prep structure are the students in the work-study academies. These students will experience on-the-job work experience as part of the school day starting in the ninth grade. The students in this "academy" setting will be selected through an eligibility criteria which includes but is not limited to at-risk or high dropout potential characteristics. This academy will likely include an apprenticeship model during the senior year.

STRUCTURE OF THE DATPC INTEGRATED TECH PREP PROGRAM


WORKPLACE
EMPLOYMENT
COLLEGE
POST-SECONDARY SPECIALIZATION
12
AB/C
TECHNICAL WRITING
PATHWAY SPECIALTIES
AVS
WORK-STUDY
HIGH SCHOOL
11
ALGEBRA II
PRIN. OF TECH II OR AB/C
PATHWAY SPECIALTIES
TECHNICAL ENGLISH
10
APPLIED MATH II
PRINCIPLES OF TECHNOLOGY I OR
APPLIED BIO./CHEM.
PATHWAY SPECIALTIES
9
CAREER PATHWAYS
APPLIED MATH I
MIDDLE SCHOOLS
CAREER EXPLORATION
4 YEAR SELF-CONTAINED ACADEMY
WORK-STUDY OPPORTUNITIES

SECONDARY AND POSTSECONDARY ARTICULATION

An essential component of the master plan for implementation of the Tech Prep initiative is the full articulation of coursework and curriculum between Doña Ana Branch Community College (DABCC) and the participating Doña Ana Consortium schools.

Numerous articulation agreements are currently in place and have resulted from collaboration between secondary school instructors in their respective curricular areas and their counterparts at DABCC. A mechanism currently exists for the initiation and completion of an agreement between secondary and postsecondary schools. Please refer to "Program Articulation Plan" in the appendix.

A need exists, however, to move beyond the course-by-course articulation which is now in place, to an outcomes-based program-to-program articulation. This will be a process driven by our Curriculum Steering Committee. The area secondary schools and DABCC must elevate the level of sophistication in agreements to include competency driven articulation.

A natural derivative of this outcomes-based linkage between secondary and postsecondary levels involves curriculum development and realignment. As competencies and outcomes are identified, listed, and compared, new and different courses will evolve, continuing the articulation process.

Initially, articulation was limited to those courses existing in each high school. Articulation will be broadened to include courses falling within the categories of the four identified clusters in a 4+2 curricular scenario. As clusters are re-identified, rearranged, or broadened, articulation must adapt accordingly, eventually to include a middle school career exploration component. (Sierra Middle School will pilot an eighth-grade career exploration course beginning Fall 1993.)

The implementation of curricular changes resulting from increased articulation and enhanced curriculum could be administered in several ways:

- First, the Curriculum Steering Committee is an existing vehicle for overseeing and reviewing curricular articulation and revision, since it combines elements of both secondary and postsecondary education. Subject-matter subcommittees can investigate and refine individual agreements leading to program articulation.

- Second, protocol requires that proposals follow familiar lines of authority. Therefore, secondary school curricular/articulation proposals and requests, after thoughtful development from cooperating subject area specialists, will proceed through the designated building-level principal, to the district secondary curriculum director, and finally to the superintendent or his designee. At DABCC, approval will be coordinated by The Office of Student Development, through program coordinators, division heads, the Campus Director, and the Dean of the College of Human and Community Services at NMSU.
- One final consideration in the process of articulation involves the logistics of information transfer between institutions. Student records must be clearly marked or "tagged" on transcripts and registration materials to designate articulated credit status to receiving institutions, the students, and parents. The Office of Student Development at DABCC will develop the process of management of student records. Faculty and staff at respective schools are responsible for advisement as to articulated coursework.

PARTNERSHIPS

The following entities have been identified as necessary partners in Tech Prep; their potential contributions are noted:

	Mentors	Curr.	$ Supp.	Advocacy	Jobs	Direction	Marketing
Bus./Ind.	X	X	X	X	X	X	X
Government		X	X	X	X	X	
Education		X		X		X	
Community		X	X	X			X
Parents	X			X		X	
Students	X	X		X			
L.C. 2000				X			X
Prof. Org.	X	X	X	X			X
Media				X			X
Retired Community	X		X	X		X	

Barriers to Partnerships

- Lack of ongoing inservice training, staff development, and educational programs for a wide variety of audiences
- Exclusion of program partners in the planning process
- Lack of clearly defined roles for individuals and organizations
- Limited time for logistics and follow-up
- Paradigms and resistance to change
- Overload of programs and activities that partners are being asked to support from inside and outside education

Strategies To Overcome Barriers

- Provide convenient meeting times.
- Provide clearly defined roles and expectations prior to the meetings.
- Target businesses in Doña Ana County to broaden and strengthen the resource base.
- Provide feedback to partners informing them of program progress and outcomes.
- Be honest and ask for help when needed.

BUSINESS AND INDUSTRY PARTNERSHIPS

Target Program Clusters

- Business/Information/Management
- Industrial/Engineering/Technical
- Health/Human Services
- Arts/Humanities

Business partnerships will be expanded and strengthened by pursuing the following activities:

- Meet and secure business partners. Partners will be asked to
    - work closely to develop curriculum,
    - provide mentorships (after training),
    - provide teacher internships in business and industry,
    - provide career explorations, internships, and co-op experiences,
    - utilize retired persons to develop explorations/internships/mentors and to coordinate other volunteers,
    - seek support for cluster-related field trips to supplement existing postsecondary trips or visits to high school cluster areas (middle schools), and
    - provide for teacher internships with business partners.
- Offer incentives to Business/Industry:
    - Highly skilled employees
    - Public recognition of partnerships
    - Input in preparing students for work
    - Reduced risk in hiring future employees

EDUCATIONAL PARTNERSHIPS

- Include NMSU as full partner in teacher preparation, articulation, and research.
- Continue to strengthen the partnerships between the public schools and DABCC.

ARTICULATED CURRICULUM AND CURRICULUM DEVELOPMENT

Tech Prep is an intriguing and highly utilitarian curricular concept for several reasons. First, it provides an alternative to the general track of course offerings. Second, it encourages students to focus their high school education toward a tangible and useful career goal. Third, it provides the opportunity for work-related experience.

New students enrolled in the Tech Prep program will receive enhanced preparation in the four cluster areas: Business/Information/Management, Health/Human Services, Industrial/Engineering/Technical, and Arts/Humanities. Clusters will provide a focus of study in an occupational and interest area that has heretofore been available only to a select group of students.

Students will develop these skills by mastering the Tech Prep core courses in Applied (technical) Math, Principles of Technology, and Applied Biology/Chemistry, as well as in Technical English and Writing. In addition, students will focus in a cluster area by enrolling in course combinations consistent with 4+2 plans developed cooperatively with their parents and designated advisors. Students must also adhere to all local and state graduation requirements as well as be mindful of additional requirements imposed by national testing services and universities. Upon graduation, students may proceed to articulated programs culminating in associate degrees or one year certificates at DABCC.

The Tech Prep curriculum is presented to students as a combination of core basics, existing required subjects, and specialty area electives. As mentioned earlier, this curriculum is dynamic and subject to evolution and revision, depending on the changing nature of outcome-based needs in the marketplace and secondary and postsecondary schools.

Students will achieve radically heightened focus to their high school planning and career objectives through their six year plan, cluster-area choice, and sense of belonging as created by inclusion in umbrella organizations such as MAAPS.

MAAPS, an incentive-distributing, morale-boosting, and focus-tightening umbrella organization, can be a strong advantage to students needing direction in their high school career. Students applying for inclusion in the MAAPS program will receive numerous benefits and incentives in exchange for promises of

- parental involvement in planning,
- better attendance,
- grade standards, and
- collaborative advisement by participating faculty.

A mentorship and student service component is also contemplated at this time.

Central to the success of the cluster and focus theme are parental interest and involvement, career exploration at the middle school level, and clearly explained advisement at the ninth-grade level. Parental involvement should be increased as the MAAPS program becomes more popular. A career exploration curriculum is currently under development in the Las Cruces Public Schools (LCPS). Advisement strategies are addressed in this document and will be enhanced in MAAPS.

Students in cluster areas will understand that their high school and potential postsecondary education differs from that of some classmates because of this focus. As students progress through four years of high school and then post-high school education, the meaning and relation of coursework will become increasingly clear—the direct application of high school to additional education and the future workplace.

As students become more focused and better prepared in a core curriculum of math, science, and language skills, curriculum should evolve to meet changing needs. Instead of the old self-perpetuating cycle of conformity to the curriculum guide of a previous year, departments can begin to break molds and structures solidified by years of neglect. Guided by the principles developed in this document, curriculum can change in response to needs central to the Tech Prep philosophy.

The DATPC will be a clearinghouse for ideas and the impetus for change at the building level, since it represents every level of decision making at the secondary and postsecondary level. Mapping strategies and structures are currently being strengthened and tightened to more clearly define the clusters for students.

The Doña Ana consortium supports the creation of work-based opportunities for Tech Prep students through the existing EXCEL and coop programs, individual apprenticeship opportunities, JTPA joint placement agreements, and the creation of cluster-specific academies. Because of the importance of work-based experience in both the motivation and education of the student, business and industry will become increasingly responsible as partners in the Tech Prep equation. Eventually, business and industrial partners could contribute heavily to the broad-based outcomes and competencies which will drive the creation, revision, and articulation of Tech Prep curriculum.

As mentioned in the sections dealing with "Articulation," two factors drive the curricular process in Tech Prep. First, curriculum in existing departments and settings provides a baseline from which course offerings can evolve. Second, materials developed from the Center for Occupational Research and Development (CORD) enrich and expand math, science, and language arts capabilities which in turn cause curriculum to change and adapt. Curricular change moves through established protocol channels at both the secondary and postsecondary levels.

As the situation presently stands, applied academics are taught at both secondary and postsecondary levels, but are not truly integrated into the vocational or cluster areas. The DAPTC recognizes that integration is a major component of a successful Tech Prep Program and sees the need to modify current applied academic curriculum into a more cluster-specific curriculum model.

GUIDANCE AND COUNSELING

Thorough and ongoing counseling is essential to empower students to become lifelong learners and successful members of a modern world-class workforce. The responsibility for this counseling is to be shared by counselors, advisors, and instructors at both the secondary and postsecondary levels. A guidance and counseling committee, which consists of middle school, high school, and community college personnel, exists to address this need.

While the guidance programs must be designed by the individual school district's needs and personnel, the following is a guideline for consideration.

Sixth and Seventh Grade

Students at these levels should receive initial career guidance. All students should take an interest inventory to begin to discover interests and abilities. Teachers, with the assistance of school counselors, will need released time to design an introductory career exploration program.

Seventh and Eighth Grade

Specialized formal career exploration should occur on this level. Middle schools in the Las Cruces area may model programs after the Sierra Middle School program, which will allow students to explore several areas over a two-year period. Career portfolios, including aptitude and interest test results, and interest testing may be sent to high schools in cumulative folders at the end of the eighth-grade year. Efforts to develop portfolios must be coordinated within the district.

Eighth-grade teachers would need to receive inservice training in career clusters early in the school year. Then, before high school registration occurs in March, teachers would work with students to identify clusters and assist in developing four-year plans for students. Students would fill out a scan sheet detailing their four-year plan, which would then be scanned into the computer to be used for student credit checks. Since most middle school teachers are already working toward assisting students in career exploration and four-year plans, most of these steps merely need to be formalized. A representative from information services will have to be contacted as changes in most computer programming for the district require a one- or two-year lead time.

The state of New Mexico requires that all high school students have a four-year plan. The Tech Prep initiative has supplemented this plan with the introduction of a 4+2 plan enabling students to chart their course toward an associate or baccalaureate degree through a focused high school career education program and "cluster maps" included in the high school curriculum.

Ninth through Twelfth Grades

In order for career guidance to work on the high school level, all facets of the school—from administration to guidance to teachers—need to be committed to helping students discover their individual career paths. Within the structure of the integrated Tech Prep program, guidance must continue to assist students and teachers in providing information for cluster selection, course advisement, and postsecondary education application. Recognizing these responsibilities, guidance services must be able to do the following:

- Instruct all ninth graders in the use of the Guidance and Information System (GIS) program.
- Maintain a career library to include not only books and pamphlets, but also videotapes.
- Continue to subscribe to career magazines which can be used in the classroom.
- Provide a list of available speakers within the community.
- Design a series of presentations for specific purposes and grade levels (topics ranging from careers to postsecondary applications).
- Educate parents and students about opportunities available to students through use of parent newsletter and parents' night meetings.
- Maintain and advertise scholarships for postsecondary institutions.
- Provide a location for postsecondary representatives to visit with students about available programs.

At the community college, the advising process is developmental in nature and the task of advisement is to help the student become an informed consumer of community college offerings. Efforts are underway to move the college toward a dual advisement model which would include the services of an advising center and faculty advisement specific to career programs. This movement will systematize the advising process so students can access the full range of services available, including counseling, career information utilizing the GIS and the CDM, and placement services. Community college students should have access to student support services that encourage sound decision making based on accurate information about course offerings and employment. Efforts are underway to increase faculty awareness of the articulation agreements with the county high schools so this information can be used to help students select courses in line with articulated courses.

MARKETING THE PROGRAM

The four objectives of marketing the Tech Prep program are as follows:

Objective 1	Create an awareness and understanding of Tech Prep benefits.
Objective 2	Maximize participation in the partnerships.
Objective 3	Maintain high visibility to create a broad base of support within the community.
Objective 4	Utilize existing and future needs assessment data as well as Department of Labor statistics in program development and promotion.

Target Audiences

Initial marketing strategies are broad-based and will lay the foundation for future strategies; however, marketing is an ongoing process which is to be fine-tuned as it progresses. There are four general target audiences. These audiences must be addressed simultaneously to gain program support and nurture an attitude for success.

The four basic target audiences are as follows:

1. Students
2. Educators
3. Business and industry
4. Parents and community

Marketing Tech Prep to Students

- Develop and distribute an instrument to survey students' vocational perceptions and needs.
- Develop marketing items for this target group.

- Administer a career interest assessment.
- Explain the Tech Prep Program to eighth-grade students.
- Plan an individual career counseling session for ninth-grade students.
- Plan for Tech Prep students' evaluation.

Marketing to Educators

- Develop curriculum, student services, and staff development committees.
- Develop counselor/teacher needs and interest survey.
- Develop marketing materials.
- Plan career awareness education for K through twelfth-grade.
- Plan orientation focus meeting with consortium teachers, administrators, and counselors.
- Select a career interest assessment instrument.
- Assist counselors with the development of a career cluster plan.
- Facilitate staff development for teachers and counselors.

Marketing to Business and Industry

- Establish a Tech Prep Business and Industry Advisory Committee.
- Formulate a needs assessment focus group.
- Develop marketing materials based on recommendations of the focus group.
- Develop an at-a-glance fact sheet for instructors' use with business and industry.
- Plan a business and industry "event."
- Plan for follow-up on responses from business and industry.

Marketing to Parents and Community

- Develop survey instrument to assess perceptions and concerns of parents.
- Develop appropriate marketing materials.
- Formulate parent focus group.
- Develop plan for business and industry to inform parents.
- Plan Tech Prep parent orientation meeting.
- Include parents in student career counseling.
- Inform civic organizations.

Some of the above marketing strategies are based on information made available from Carla High, Francis Tuttle Vo-Tech Center, Oklahoma City, Oklahoma.

AT-RISK/SPECIAL POPULATIONS

The Doña Ana Tech Prep Consortium (DATPC) serves a large population of at-risk and special needs students. In Doña Ana County, our service area, the total population is approximately 135,000, making it the second largest county in the state. The population consists of 56% Hispanic with 50% of the total population represented by women. Within a fifty-mile radius of Las Cruces are El Paso, Texas, and Juarez, Mexico, which would approach a regional population of two million people.

Because of the proximity to Mexico and several major border crossings, Doña Ana County will be vulnerable to the unpredictable effects of the North American Free Trade Agreement (NAFTA). Doña Ana County is one of the fastest growing metropolitan areas in the United States and is among the ten counties in the nation with the lowest per capita income. The county is highly impacted as people cross the U.S./Mexican border and settle in the county, a phenomenon which will increase with the passage of NAFTA. This population elevates the county's percentage of those who are economically and academically disadvantaged and of limited-English proficiency.

All Tech Prep courses in the high schools will provide access to special populations—persons with disabilities, economic disadvantages, educational

154

disadvantages, and limited-English proficiency. School counselors will visit with students and parents including those in special education classes in public schools to explain the Tech Prep program. The awareness portion of the Tech Prep project will devote effort to providing information in forms available and accessible to special populations. Some materials will be developed in Spanish for those limited in English proficiency. Student handbooks will be developed at a reading level appropriate for the educationally disadvantaged. For those students with disabilities, an Individualized Educational Plan (IEP) will be developed including those academic skills to be upgraded. Tutorial and special assistance will be made available to each student with disabilities. Alternative procedures will be incorporated where necessary, and accommodations will be made in order to be responsive to the disabled students' needs.

Career guidance and counseling are available in each of the high schools in the consortium. Career guidance will play a key role in Tech Prep, and students with disabilities will receive counseling in career choices, career exploration, decision making and self-responsibility. Doña Ana Branch Community College's (DABCC's) service area high schools will include all students, including special populations, in Tech Prep programs. Curriculum, equipment, and classrooms will be modified to accommodate special populations; instructional aids or devices will be supplied to those who need them.

DABCC has a wide and diverse student population. The student enrollment is approaching 4,000; the average age of the student population is 28 years old; over 51% of the population are women; approximately 51% are minority—mostly Hispanic; and about 33% of the students are enrolled in Developmental English, Reading, and Math. The college has experienced a 250% growth rate in the last five years.

DABCC has two major areas of concern in addressing the student population: (1) The average age of the student population is twenty-eight years old. This relates to a potential "ten-year delay" in occupational skill development and enhanced economic earning potential; and (2) over one-third of the students are enrolled in remediation courses in Developmental English, Reading, and Math. These concerns greatly increase the need for "bridge programs" for older students entering college with inadequate skills. DABCC is currently developing a bridge program to address the needs of those students who did not have access to, or did not take advantage of, a high school Tech Prep program.

At DABCC, programs in place to address special needs populations include Adult Basic Education, Educational Success Services, and Disabled Student Services. In addition, the Area Vocational School program has a mechanism for admitting special education students administered in cooperation with the Director of Disabled Student Services.

While Tech Prep is seen as a means to attract at-risk students and "the neglected majority," the DATPC also believes that Tech Prep can be for *all* students.

Bridge Program

Many of the DABCC students are returning adults. These students would not have had the benefit of the applied academics of the Tech Prep programs at the high schools. It stands to reason, then, that the adult students will be at a disadvantage with respect to Tech Prep and will need a bridge program to make them competitive.

Subject areas which need to be addressed are Applied Math I and II, Applied Biology/Chemistry, Principles of Technology, Applied Communications, and Computer Skills. During the student advising session, IEPs will be established for the student's discipline/degree area.

Possible delivery systems for DABCC will include the following:

- To research and investigate potential models and funding sources.
- To plan and design a program of study:
    1. DATPC team members of college faculty will work in collaboration to plan and design the appropriate course of study.
    2. Initial program course offering will be offered through "Special Topics" designation. These courses will not count toward the credit hours needed to complete a student's degree program.
    3. Trial classes will be implemented.
    4. Ongoing student assessment will be done during the implementation year.
    5. At the conclusion of the implementation year, there will be a program review to evaluate program effectiveness, delivery mechanisms, and so on.

6. Designated courses for approval process will be created.

- Need to address items of concern for the adult working student entering the bridge program:
    1. The bridge program will have to be considerate of student work schedules.
    2. Financial aid options will need to be addressed for this population.

The majority of students should be able to master the competencies in the bridge program within one year.

LOCAL POLICIES

While local policies regarding educational issues vary from community to community, the following issues seem most likely to become important as postsecondary education programs are emphasized.

- Student recruitment and selection—the DATPC firmly supports equal opportunities for all students to become involved in either Tech Prep or college prep programs. Students will have to maintain good attendance and be willing to assume the responsibilities of working in core courses as well as in their career cluster courses. Students may also be required to read within two years of grade level or have strong teacher recommendation in order to enroll in the secondary education programs. Remediation classes will be available to students if a need exists and if the district is willing to support the program financially.
- Teacher certification—while recognizing New Mexico State Department of Education licensing requirements for state teachers, the DATPC also stipulates that teachers be trained in integrating curriculum and advising students in career decisions. New Mexico State University will be encouraged to include this type of training in its teacher education program. Additionally, a representative from the College of Education will become a member of the implementation team.

STAFF DEVELOPMENT

Staff Development Goals

Outcomes

- Broad-based positive understanding of Tech Prep and its applications
- Solidification of a Tech Prep Planning Team at each school

Activities

- Actively seek opportunities to link OBE, Tech Prep, and other restructuring efforts.
- Provide a luncheon and work session to enable core team to plan NCRVE presentation for February 1994.
- Solicit support for Tech Prep from all department heads.
- Coordinate February inservice for all schools in Applied Academics utilizing vocational/academic teams.
- Have core team make a presentation to all consortium faculty.
- Enable consortium teachers to attend train-the-trainer sessions with CORD.
- Coordinate planning periods to enable TPAD teachers to work together.

PROGRAM EVALUATION

The Doña Ana Tech Prep Consortium will compete for state funds to develop an evaluation model for Tech Prep programs statewide. This proposed model will provide for the hiring of a research assistant who will work under the parameters delineated below, consistent with federal guidelines. This research assistant will utilize as a base the instruments already in place and will work to refine these instruments.

These instruments include but are not limited to the following:

- Pre- and posttest Applied Academics Data
- Database ASSET scores beginning with May 1992 Doña Ana County high school graduates
- Program Plan/Evaluation for faculty attitude and levels of understanding

The research assistant will develop a model based on the following themes:

- Coordination and Articulation—Evaluation will be based upon whether a student, after having earned a B in an articulated course, maintains a C in each course accruing to 30 college hours.
- Program Planning and Implementation—The research assistant will develop a model for use at both the local and state level. This will include attention to the roles of education, business/industry, and the community.

- Access of Special Populations—Evaluation of this part of the model will be based on the data furnished by the Vocational Technical Information System (VTIS) at the secondary level and the demographic data furnished by the ASSET/COMPASS at the postsecondary level. Concerns include access to the program, appropriate accommodations provided, and success rates of the special populations.
- Participants' Characteristics—The research assistant will develop a model for identifying and describing the demographics of the population served. Evaluation will be based on compatibility of the Tech Prep population with the general population.
- Program Staff—The model will develop a method to evaluate the extent to which staff are fulfilling their assigned tasks and the degree to which they are advocates of Tech Prep.
- Program Costs—Evaluation will be based on the total cost (budget) divided by the number of students served. The per-student cost should be proportional to average daily attendance monies.
- Program Effects—Evaluation will be based on short-term goals and objectives identified in the consortium master plan including issues such as teacher training, utilization of grant money, and so on.
- Employment Outcomes—Effectiveness of the Tech Prep program will be based on the number of people successfully employed in their chosen field and the number entering above entry-level positions. In addition, methods will be developed to measure employability in terms of the New Mexico Employability Model.

The DATPC recognizes the need for ongoing evaluation, both formative and summative. The consortium also recognizes its responsibility to the state to serve as an accountable model and to provide leadership statewide through utilization of the university research facilities.

A critical part of evaluation of any program is the methodology employed to measure student outcomes. It is envisioned that the evaluation model developed would include a careful look at student assessment.

STUDENT ASSESSMENT

Student assessment is an ongoing process using both objective and performance-based instruments. The objective instrument used in the applied academic area consists of the pre- and posttests furnished by CORD and/or AIT. Students are assessed objectively in the work-based coursework using traditional methods. A form of objective evaluation is also part of the articulation agreement with the community college. The consortium recognizes the need to develop evaluation instruments to evaluate student performance. The instruments should conform to standards as addressed in the SCANS report as well as in the New Mexico Employability Model.

A performance-based assessment tool could consist of expanding the portfolio which students began at the middle school level. This portfolio should be assessed at predetermined benchmarks, thus allowing students to make any revisions necessary to achieve their goals.

The information gathered from this assessment process can be utilized by

- assessing student progress,
- making program revisions,
- raising public awareness,
- marketing, and
- funding.

BUDGETARY AND FISCAL CONSIDERATIONS

Though presently moving along with some degree of momentum, Tech Prep programs will soon falter if supplementary forms of funding are not identified and secured.

Continuing and expanded funding will be necessary for the following reasons:

- In order for programs to accommodate more students, additional supporting materials and supplies must be acquired.
- Old, outdated, or broken technology must be replaced.

- As courses must be added, expanded, or updated, teachers will need release time for training and material development.
- "Seed money" for pilot programs will be necessary.
- Work-related initiatives for students will require funding to "jump start" programs.
- Teachers in planned cluster academies will need concurrent planning periods and additional planning time, requiring extra funding.
- Partnership coordinator should be hired.

Funding sources currently available that should be fully explored include the following:

- Continue Perkins funding sources.
- Apply for JTPA grants.
- Earmark state-level education funds.
- Create line-item status for Tech Prep education.
- Locate other grant sources and train a cadre of grant-writing specialists.
- Cultivate and encourage business partnerships.
- Pursue teacher training money through Eisenhower grants.

APPENDIX ONE

Defining Terms

Academy

An educational program with a career focus which integrates vocational and academic content in a meaningful context and provides students with opportunities for work-based learning.

Advanced Skills

Programs that are skill enhanced or contain advanced curriculum programs. Advanced Skills programs add more advanced training, eliminate course redundancy, and enable students to graduate with higher-level skills.

Advanced Standing

A process through which a student may be eligible to receive credit for all or part of a course due to competencies mastered previously. The determination of advanced standing is made by each community or technical college upon a student's enrollment in a program. Advanced standing may be granted through (1) validation of experiential learning (e.g., work, military, leadership, or organizational); (2) successfully passing a challenge examination; (3) transfer credit from another postsecondary institution; (4) transfer credit from secondary school under the terms of an articulation agreement; and (5) evaluation of advanced sequential coursework.

Applied Academics

The presentation of subject matter in a way that integrates a particular academic discipline (such as mathematics, science, or English) with workplace applications which serve as the foundation for Tech Prep.

Articulation

A process for linking two or more educational systems within a community to help students make a smooth transition from one level to another without experiencing delays, duplication of courses, or loss of credit. *Horizontal Articulation* generally refers to student transfer of credit from one institution to another at the same level. *Vertical Articulation* refers to the transfer of credits from a lower-level institution to a higher-level one.

Articulation Agreements

Written agreements between the local school system and the postsecondary institution that are signed in the developmental stages of Tech Prep. Articulation agreements allow a student the opportunity to avoid duplication of coursework. A commitment to a program designed to provide students with a nonduplicative sequence of progressive achievement leading to competencies in a Tech Prep education program.

ASSET

Otherwise known as Assessment of Skills for Successful Entry and Transfer, this is an ACT placement exam widely used by community colleges.

Authentic Assessment

Student assessment based on student achievement beyond traditional norms testing. Authentic assessment is characterized by portfolio development, individual and group presentation, samples of work, and subjective evaluations of student performance and is linked to intended outcomes of the program.

Basic Skills

Basic skills are those that are generally accepted as enabling students to decode and encode information presented in written, numeric, and aural forms. They normally fall into the areas of reading, writing, mathematics, and language.

Bridge Program

A supplemental pathway designed to accommodate students deficient in the academics and basic technology areas that have been taught to high school Tech Prep graduates. Designed to accommodate the students who do not have the skills required for entry into a specific postsecondary program.

Career Cluster

A Tech Prep curricular approach designed to build stronger foundations, provide opportunities for student choice, and increase competency levels. This approach is based on the concept that many clusters of occupations require common skills and knowledge for which a common educational program can be developed. The curriculum is a combination of core basics, existing required subjects, and specialty area electives. All eighth-grade students will receive an introduction to career clusters as a part of their orientation to high school. Each ninth-grade student will select a career cluster for exploration and study. Students may change clusters at the beginning of each year. Samples of career clusters are the following:

- Business/Information /Management
- Health/Human Services
- Industrial/Engineering/Technical
- Arts and Humanities

Career Decision-Making

A process in which a student learns about him/herself, the world of work, and the relationship between the two. Career planning includes a career awareness for K-6, career exploration at the middle level, and career preparation beginning in grade eight and carried through grade fourteen.

Career Pathways

A pathway is a plan which can lead to an articulated postsecondary education. The three pathways are Tech Prep, College Prep, and Occupational Prep.

Community College

An institution which provides one year certificates of completion, two year associate degrees, and college credit coursework.

COMPASS

Computer/Adaptive Placement and Support System. This computerized assessment program was developed by ACT.

Competency-Based Education

An organizational structure for learning and teaching. Competency-based curricula clearly identifies expected outcomes, knowledge, skills, and attitudes. It organizes instruction based upon performance standards, and evaluates student performance based upon mastery of competencies.

Concurrent Enrollment

Students who enroll for part of their day at a regular high school and receive additional training or instruction at an area vocational school or community college.

Contextual Learning

Learning that focuses on making the learning environment as rich as possible in multifaceted learning opportunities. Multiple intelligences, multiple learning styles, theory, and various teaching approaches (i.e., experimental, holistic, and applied) are included.

Core Abilities

The transferable skills essential to an individual's success regardless of occupation or community setting. These skills are regularly identified by employers, employees, and educators as essential to lifelong learning to (1) work productively, (2) think critically and creatively, (3) act responsibly, (4) communicate clearly, (5) learn effectively, (6) value self positively, and (7) work cooperatively.

Core Basics

Applied academics common to all Tech Prep students. These include Applied Math, Applied Science, Applied English, and Applied Communications.

Cultural Understanding

An awareness and acceptance of the beliefs and values associated with ethnicity.

Employability Skills

Generic skills that enable students to obtain and maintain employment. See also SCANS.

Equal Access

Provides all students equal opportunity to enter the Tech Prep program.

EXCEL

Experience-Based Career Education and Learning. A career exploration program in which juniors and seniors are placed in a work setting for part of each day. They can rotate to a new setting each quarter.

Integration

The act or process of blending or forming a whole. In Tech Prep, academic and technical curricula are integrated into a single curriculum.

Internship

Refers to work-based learning in which a partnership is established between the school, an employer or business, and the student for the purpose of providing practical education to the student through productive work opportunities. A signed agreement between all parties outlining a student's cooperative learning plan is a necessary component of an internship.

JTPA

Job Training Partnership Act.

LEP

Limited-English Proficient—Refers to individuals whose native language is not English or who come from an environment where a language other than English has had a significant impact on their level of English proficiency.

MAAPS

Mayfield Advanced Academic Planning Society—A high school organization designed to recruit, retain, and provide incentives to students wishing to develop clear educational and career goals. The society will be open to all students, but will require members to adhere to high behavior, attendance, and grade point average standards.

Neglected Majority

The high school audience that Tech Prep is designed for that often involves the middle 50% of the students who are in an unfocused general education track.

OBE

Outcomes-based education

Paradigms

Widely accepted modes of thinking within an organization. A mindset.

SCANS

Secretaries Commission on Achieving Necessary Skills—Commission formed by the U.S. Department of Labor to determine skills that students must develop in order to be successful in the economy.

School-To-Work Transition

An initiative that strives to ensure that today's young people be adequately prepared for the future workforce within the state, national, and global economy.

Special Populations/At Risk

Individuals identified with handicaps, LEP, educationally and economically disadvantaged, and individuals in correctional institutions.

Tech Prep

An organized sequence of classes that leads students through an occupational preparation program resulting in students who are both occupationally and academically competent.

Tech Prep Consortia

Working partnerships between secondary and postsecondary institutions that are empowered to implement and promote Tech Prep initiatives throughout the United States.

2+2, 4+2

2+2 program—the first "2" refers to the eleventh and twelfth grade at the secondary level, the second "2" refers to thirteenth and fourteenth grade at the postsecondary level. 4+2 program—the "4" refers to the grades nine through twelve at the secondary level, the "2" refers to grades thirteen and fourteen at the postsecondary level. Programs result in students receiving an Associate of Arts Degree or certificate of competency from the participating community college. Articulation agreements are important components.

VTIS

Vocational Technical Information System—The New Mexico system for assessing vocational secondary enrollments, demographics, and program completion.

Youth Apprenticeship

A broad effort to improve the transition from high school to work. Youth apprenticeship is explicitly intended to link high school students with business and industry through integrated education and work-based learning programs leading to a credential of proficiency.

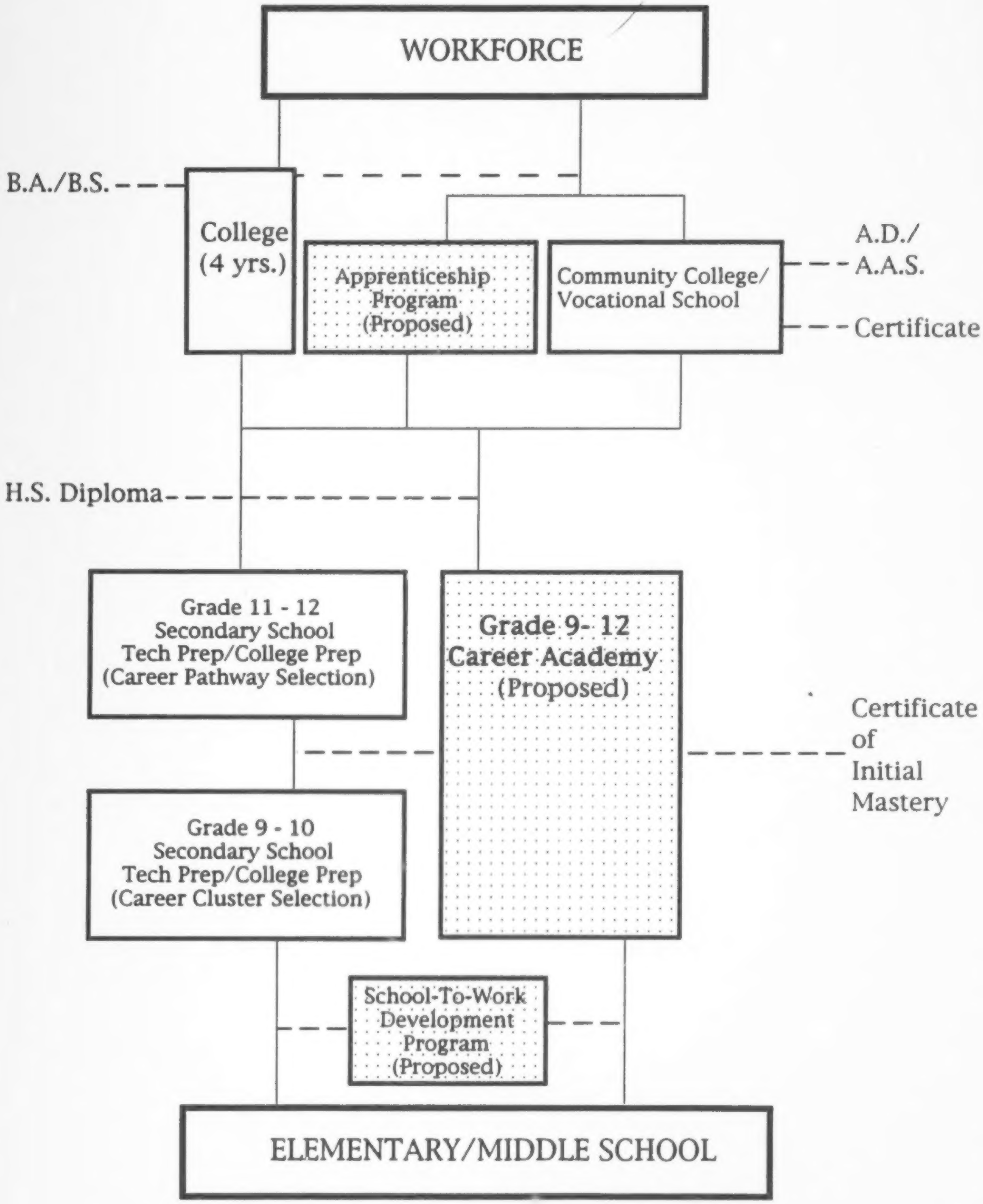
Work

What one does as a contributing member to the economy.

Work-Based Learning

Integrates theoretical instruction with structural on-the-job training. Modeled after apprenticeships and internships.

APPENDIX TWO
SCHOOL-TO-WORK PROGRAM


WORKFORCE
B.A./B.S.
College (4 yrs.)
Apprenticeship Program (Proposed)
Community College/ Vocational School
A.D./ A.A.S.
Certificate
H.S. Diploma
Grade 11 - 12 Secondary School Tech Prep/College Prep (Career Pathway Selection)
Grade 9- 12 Career Academy (Proposed)
Certificate of Initial Mastery
Grade 9 - 10 Secondary School Tech Prep/College Prep (Career Cluster Selection)
School-To-Work Development Program (Proposed)
ELEMENTARY/MIDDLE SCHOOL

APPENDIX THREE

ARTICULATION AGREEMENTS

DABCC Division: ____________________

DABCC Program: ____________________

The purpose of this instrument is to document approval of a Program Articulation Plan for specified courses and instructional programs between Doña Ana Branch Community College (DABCC) and ____________________.

The policy awarding articulation credit under this Articulation Plan has been approved by the Administration of Doña Ana Branch Community College and New Mexico State University as well as officials of the above mentioned school district.

This document stipulates the mechanism whereby students who have completed specified courses or programs in the above mentioned school district and met specific conditions of articulation will be granted college credit via articulation.

The course/s to be articulated via this document are:

High School Course Name & Number	Credits Awarded	DABCC Course Name & Number	Credit Hours Awarded

Note: Additional courses may be listed on a separate page.

The evaluation criteria, course content, and exit competencies for each articulated course have been formulated by and agreed to by representatives from each institution.

Under this articulation agreement the following conditions of articulation are hereby set forth:

1. To be eligible for credit via articulation, the student must meet all DABCC admissions requirements and be officially enrolled at DABCC.
2. High school students enrolled under concurrent AVS Program must graduate from high school before articulation credit can be granted.
3. The student must have an official high school transcript on file with DABCC/NMSU Registrar's Office.

4. The student must request a preliminary evaluation and assessment and initiate an official degree plan with the appropriate DABCC advisor at the time of enrollment.

5. The student must have completed the high school courses for which articulation credit is being requested within forty-eight (48) months preceding the request for credit.

6. The appropriate DABCC Program Coordinator will be responsible for evaluating the official high school transcript and recommending advanced placement and eligibility for articulation credit based on stated conditions in this articulation plan and *DABCC College Validation of Secondary Occupational Education Policy*. This recommendation is approved by the Division Head and forwarded to the Associate Provost for implementation.

7. All specific program articulation plans will be on file with the Doña Ana Branch Community College Associate Provost, the appropriate Division Heads, and school personnel.

8. The student must have successfully completed the specified high school course/s and received a grade of "B" or better in order for Community College credit to be awarded.

9. To validate articulation credits, the student must successfully complete thirty (30) credits in the DABCC program with a minimum grade of "C" in all courses.

10. In addition to the conditions outlined above, the following special requirements must be met for award of credit:

    ____

    ____

    ____

    Check here if none ☐

11. The student must meet all conditions for articulation credit stated in this Articulation Plan which covers the requested courses in order to receive community college credit for an articulated high school course.

12. The appropriate DABCC Division Head and Program Coordinator will initiate a biennial review of this Articulation Plan with high school representatives to evaluate any changes in competencies, content, or standards.

13. This agreement may be terminated in whole or in part by either party giving a thirty (30) day notice in writing to the second party. Such notice shall be sent by certified mail. However, such termination shall not take effect with regard to students already enrolled in the Community College and actively pursuing the 30 hours of validation coursework.

Attachments: Official course descriptions/outlines of high school articulated courses.
Official course descriptions/outlines of DABCC articulated courses.

Articulating Institutional Representatives

Institutional representatives whose signatures appear below, acknowledge a commitment to effectively accommodate the conditions of the articulation attached:

Date

Articulating School District:	Doña Ana Branch Community College:
Signature and Title	*Division Head*
Signature and Title	*AVS Program Coordinator*
Signature and Title	*Associate Provost*

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Doña Ana Tech Prep Consortium

Planning Component: Student Assessment

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Creation of student assessment instruments for both applied academics and vocational areas.	1993 - Begin specific assessment instrument development 1994 - Field test initial instruments 1994+ - Ongoing modification and increase use	Cluster teachers–Mayfield High–field test Evaluation committee–DATPC	Content area teachers at both secondary and postsecondary levels Employers	Release time for teachers to work on modifying objectives, creating integrated assessment instruments, and creating performance-based assessment Use of program evaluation research assistant Money for reproducing materials	Improved student performance and adaptation of existing curriculum to meet student and community needs	Increased number of students in program, successful completion of program, reduced dropout rate Use Mayfield High field test as baseline for statistics for future use.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Doña Ana Tech Prep Consortium

Planning Component: Curriculum Delivery

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Establishment of Mayfield High School as a local, regional, and state demonstration site	Immediate to May 1994 and continuing	Mayfield administration (Barbara DeLong and Del Hansen) Mayfield Tech Prep team (Wally Greene, Jo Beth Hawk, Jane Wilmes, and Donna Hansen) DATPC Curriculum Steering Committee	All Tech Prep teachers at Mayfield (Francine McNeill, Mike Sullivan, Warren Goodman, David Eason, Chad Rogers, Patsy Emery, Jennifer Pendergraft, Vicky Alarcon, and others to be named) Administration of Oñate High School for Allied Health	Material and monetary support from school district and consortium for development and printing of material Distribution of information statewide announcing Mayfield High School (MHS) as demonstration site by State Department of Education	Schools in the planning or early implementation stages will be able to view firsthand functioning Tech Prep programs and to interview practicing Tech Prep educators. Tech Prep educators at MHS would meet to develop effective format to maximize effectiveness of visitation.	Feedback of participating visiting teams through verbal (informal) and written (formal) means–instrument to be developed

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Doña Ana Tech Prep Consortium

Planning Component: Program Evaluation

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To develop an assessment tool to be used statewide to evaluate Tech Prep. This instrument will consist of a series of instruments as outlined in the Program Evaluation Section of this document.	1993-1994 school year	Doña Ana Community College Mayfield High School (model school) for field testing	Secondary schools in the consortium	New Mexico State University Research Assistant New Mexico Department of Education (funding)	A statewide assessment tool for Tech Prep	Final document

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Doña Ana Tech Prep Consortium

Planning Component: Guidance and Counseling

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To design and implement career guidance program for middle school and high school students.	1993- Initiate discussion and planning with middle school and secondary school counselors. 1994- Implement cluster focus and 4+2 career planning with current eighth graders. 1995- Expand program to include 6th and 7th grades.	Middle school and secondary school counselors Middle school and secondary school administrators Designated teachers from all middle schools and high schools DATPC Counselors Committee	Deputy superintendent, LCPS and superintendent's designee, Gadsden and Hatch Office of Student Development, DABCC Coordinator of Career & Technical Education, LCPS and designated persons from Gadsden and Hatch	Office of Data Processing representative	Students will be encouraged to explore careers in middle school and will need to choose a cluster area on which to focus by the time they enter eighth grade.	Compare completion of four-year plan between pre- and post-Tech Prep students. Compare statistics of students entering the workforce or postsecondary instruction.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Doña Ana Tech Prep Consortium

Planning Component: Local Policies

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Establish Tech Prep student entry policies.	Fall 1993	Counselors, core courses teachers, representatives from DATPC	As needed.	As needed.	Set guidelines for students entering programs.	Review guidelines.
Encourage articulation and collaboration between DABCC and NMSU.	Fall 1993	DATPC Implementation Committee and NMSU College of Education representative	As needed.	As needed.	Encourage NMSU to include Tech Prep awareness in teacher education programs.	Monitor new teachers graduating from NMSU.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Doña Ana Tech Prep Consortium

Planning Component: Marketing

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Create an awareness and understanding of Tech Prep benefits. Maximize participation in partnerships. Maintain high visibility.	Spring 1994 Spring 1994 1994+ Marketing will involve long- and short-term goals with an overall purpose of institutional -izing Tech Prep. Design marketing plan Fall 1993.	The DATPC Marketing Committee (members are representatives of DATPC, media, business, parents, students, education) The consortium would like to hire a coordinator to establish business partnerships. This person would be critical to a successful marketing program.	Representatives from religious, political, special interest, senior citizen, higher education, teacher education, and state depts. of education and labor	Money to pay for print and nonprint media, radio, television, inservice and other tools Time off for planning, implementing, and training Personnel–speaker pool	Each target audience will be better informed, enthusiastic about Tech Prep, supportive, and participatory. Higher enrollment and retention of students in Tech Prep Greater awareness and support from within the educational community Institutionalization of Tech Prep	Increased student enrollment, retention, successful completion of programs, gainful employment, and reduced dropout rate Business and community–survey to determine satisfaction, few dropouts, reduced unemployment, higher skills, better communication, and positive economic impact in community Education–increased cooperation and participation

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Doña Ana Tech Prep Consortium

Planning Component: Program Management

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To provide coordination of all agencies and committees involved in Tech Prep in Doña Ana County. To develop broad outline of tasks to be recommended to each committee in cooperation with committee chairs.	Ongoing	Implementation committee of DATPC under direction of executive committee Tech Prep Project Director LCPS Career Vocational and Technical Education Coordinator Director of Secondary Curriculum at Gadsen Public Schools Tech Prep Coordinator at Hatch Public Schools	As needed.	As needed.	Tech Prep in place in all county high schools	To be developed.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Doña Ana Tech Prep Consortium

Planning Component: Curriculum Development

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Review of curriculum at high schools and DABCC to develop "seamless" curriculum Specific program by program curricular review at secondary and postsecondary levels	Fall 1993	Curriculum steering committee and subcommittees	Appropriate business/industry representatives	Department heads at high schools and appropriate faculty Program coordinators and division heads at DABCC	Outcome-based curriculum at secondary and postsecondary levels that avoids duplication and that leads to a skill enhanced curriculum at DABCC	To be developed.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Doña Ana Tech Prep Consortium

Planning Component: Budget and Fiscal Consideration

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Manage DATPC budget. Explore and seek additional funding. Elicit "hard" money support for programs.	Ongoing	DATPC Project Director LCPS Career Education Coordinator and representatives from Gadsden and Hatch school districts Local administrators and teacher groups	State Department of Education	Need to utilize individuals with grant writing expertise. Need to contact state and local agencies to explore funding sources and contributions.	Funding to maintain and develop programs Line item status with local districts for Tech Prep Earmarked appropriation from New Mexico state legislature	Levels of funding including grants, donations, line item status, and earmarked appropriations

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Doña Ana Tech Prep Consortium

Planning Component: Bridge Program

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Develop a program for DABCC students who may not have had the benefit or background of a Tech Prep program. This program does not supplant courses for an associate degree or certificate.	Research models and funding sources—January 1994 - July 1994 Plan program of study—July 1994 - July 1995 Implement trial classes—August 1995 - July 1996 Create designated courses for approval process—January 1995 - July 1996	DATPC; in particular the curriculum steering committee, with input from high school Tech Prep teachers DABCC instructors and administration	As needed.	As needed.	Nontraditional students will have as strong an educational background as high school Tech Prep students.	Levels of funding including grants, donations, line item status, earmarked appropriations

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Doña Ana Tech Prep Consortium

Planning Component: Staff Development

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Coordinate planning periods to enable TPAD teachers to work together.	1994-1995	High school administrators	Teachers	Money	Broad-based positive understanding of Tech Prep and its applications as well as solidification of a Tech Prep planning team at each school	Final schedule
NCRVE team to make a presentation to all consortium faculty.	February 1994	Tech Prep Project Director	As needed	Money	Broad-based positive understanding of Tech Prep and its applications as well as solidification of a Tech Prep planning team at each school	Completion of inservice schedule
Consortium teachers attend trainer sessions with CORD.	Summer 1994	Career Education Coordinator and Tech Prep Project Director	Applied Academics teachers	Eisenhower funds	Broad-based positive understanding of Tech Prep and its applications as well as solidification of a Tech Prep planning team at each school	Number of participants attending

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Doña Ana Tech Prep Consortium

Planning Component: Staff Development (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Solicit support for Tech Prep from all department heads.	November 1993	Berkeley team members	Department heads from each school	Money	Broad-based positive understanding of Tech Prep and its applications as well as solidification of a Tech Prep planning team at each school	Completed meetings
Provide a luncheon and work session to enable teachers to develop inservice (NCRVE presentation).	November 1993	Tech Prep Project Director	Career Education Coordinator and Assistant Principal	Money	Broad-based positive understanding of Tech Prep and its applications as well as solidification of a Tech Prep planning team at each school	Successful inservice
Actively seek opportunities to link OBE and Tech Prep with other restructuring efforts.	Ongoing	Curriculum committees	Site personnel	Money	Broad-based positive understanding of Tech Prep and its applications as well as solidification of a Tech Prep planning team at each school	Linkages as evidenced by curriculum modification

HUMBOLDT SECONDARY COMPLEX
INSTITUTE OF INTERNATIONAL STUDIES
INVER HILLS COMMUNITY COLLEGE
SAINT PAUL TECHNICAL COLLEGE
UNIVERSITY OF MINNESOTA AT MINNEAPOLIS
SAINT PAUL, MINNESOTA

Planning Document Developed at the NCRVE 1993 National Institute:
"Establishing Integrated Tech Prep Programs in Urban Schools"*
July 14-23, 1993

MEMBERS OF THE INTEGRATED TECH PREP TEAM

Humboldt Secondary Complex

- John Ettlinger, Principal
- Rebecca Christopherson, Home Economics Secondary Instructor
- Marlyn Garcia, Counselor
- Gerald Hilker, Business Teacher
- Dianne Hopen, French Teacher, International Studies & Communications Planner
- Mary Mackbee, Representative, Office of Secondary Education, Saint Paul Public Schools
- Denise Quinlan, Pangea Magnet Facilitator

Institute of International Studies

- Michael Metcalf, Director IIS
- Walter Enloe, Director Outreach

Inver Hills Community College

Mark Weigel, Counselor

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* This is a working paper. It has not been reviewed by either the NCRVE or the educational institutions/agencies where the authors are employed. Therefore, this paper represents the views of the authors only.

Saint Paul Technical College

- Joan Flood, Business Instructor/Advisor, Office Systems Specialist Program
- Terrance Murray, Machine Tool Technology Instructor
- Francisco Trejo, Dean, Technical, Trade and Industrial Education

University of Minnesota, Department of Vocational and Technical Education

- Judith Lambrecht, Professor
- George Copa, Professor and Chair
- Jane Plihal, Associate Professor

State of Minnesota

- Paula Prahl of the Minnesota Business Partnership
- Lois West of Ecolab

The governmental representative for the State of Minnesota is Nicholas Waldoch, Youth Apprenticeship Coordinator.

Along with members from St. Olaf College and Saint Paul Tech Prep Consortium, additional partners include Paula Sanchez and Robert Brown from the Business Department of the University of St. Thomas.

DESCRIPTION OF THE CURRENT PROGRAMS

The current stages of implementation include a number of statewide efforts. In Minnesota there are twenty-two separate local Tech Prep Consortia. Each exists to plan and develop Tech Prep programs. Each local consortium must include representation from high schools, technical colleges, community colleges, businesses, four-year colleges, and the State Department of Education. Consortia are administered by the State Board of Education and the State Board of Technical Colleges. The local technical college is the fiscal agent for the consortium. Currently, each consortium has presented a strategic plan for Tech Prep implementation beginning in the academic year 1993-1994.

Districtwide, the Saint Paul Public School District has been active in the Saint Paul Consortium. The Saint Paul plan outlines goals for implementation of Tech Prep curricula in all Saint Paul high schools within the next five years. Beginning in the Fall of academic year 1993-1994 all high schools will offer an applied math class. Currently a half-time district-level administrator oversees all Tech Prep activities in the Saint Paul high schools. The district also continues to explore integrated curriculum development in Tech Prep areas. Specific support has been given to Humboldt to pursue a more in-depth planning and implementation process.

Currently, Humboldt Secondary Complex is developing an integrated vocational and academic curriculum; staff have attended workshops in Tech Prep; and Humboldt is active in the consortium. Additionally, Humboldt submitted a proposal to the National Center for Research in Vocational Education (NCRVE) and staff attended the NCRVE Summer Institute in Berkeley, California in July of 1993.

This proposal provides the framework for the development of the Tech Prep program at Humboldt High School and its partners in business and postsecondary institutions. The Humboldt Integrated Tech Prep Project is the pilot program for the Saint Paul Consortium and will act as a working model at the secondary level for the implementation of Tech Prep programs for the Saint Paul Public School District.

Strengths, Weaknesses, and Challenges of the Current Program at Humboldt High School

Strengths

- Cooperative staff who are willing to try innovative curriculum activities
- A seven-period day that allows students to take an additional class
- Strong business/college partnerships
- Administrative support and leadership
- Diverse staff and multicultural setting
- Existing integrated curriculum
- Planned 2+2 business program to start up in 1993-1994

- Strong community support through Humboldt Parent Advisory Counsel (HPCAC)
- Small size of school (providing a more intimate setting for students)
- Activities of the consortium

Weaknesses

- Disconnected courses at the high school (i.e., a piecemeal approach)
- Program ownership not shared by all
- Size of school is a weakness, as it limits course and programmatic options
- Staff resistance (turf issues)
- Transportation availability for students (students must pay their own transportation expenses between participating sites)
- Lack of equipment
- Lack of teacher preparation to teach a technical content
- Parents' hesitancy to direct their children to technical careers

Challenges

- Providing a course of study for all students to ensure work readiness
- Upgrading equipment
- Finding time to train teachers
- Marketing
- Finding time for curriculum development
- Addressing staff turnover
- Adopting articulation agreements
- Finding time for cooperative planning
- Scheduling courses
- Obtaining district commitments
- Convincing secondary/postsecondary/state department of education to work together on common programs (e.g., letting go of turf)
- Building a common vision

Potential Impact of the Tech Prep Program on Weaknesses and Challenges

Integrated Tech Prep fosters cooperation among staff. By working together the partners will be able to improve curricular offerings for all students.

Many of the challenges listed above can be solved through the development of a strong plan and developed target outcomes which foster shared vision and cooperation among staff. Such solvable challenges include providing improved curriculum offerings, course scheduling, and staff development. Other challenges require a level of resources which may be difficult to secure. Critical challenges in this category are the resources required to provide time for staff and curriculum development, program planning, and the upgrading of equipment.

MISSION STATEMENT

The mission of the Tech Prep program is providing appropriate education for a changing work environment.

TECH PREP PHILOSOPHY

The philosophy of Tech Prep is to help students understand technical career options and lifework planning processes and to prepare them to perform in a competitive and changing work environment. In this student-centered education, students acquire knowledge by applying theories they are taught and connecting ideas learned in the classroom to real-life application. The ideal classroom is interactive, with the exchange of ideas, skills, and concepts crossing borders continually.

Crucial to the success of the Tech Prep initiative will be to increase communication among all educational, business, and community stockholders. Combining vocational and academic education will open career pathways that may not have been explored without Tech Prep. Ultimately the result is better prepared students, competent in attitude and skills for a world-class workforce.

Key components of the Tech Prep paradigm include curriculum integration, articulation, and target population. These terms are described, along with other important terms, in the following section.

DEFINITION OF TERMS

Articulation

A network of formalized agreements between secondary and postsecondary institutions resulting in sequenced curriculum based on common shared outcomes. We anticipate that articulation agreements will be formalized through a collaborative effort of the Saint Paul Consortium. The Saint Paul Consortium consists of the Saint Paul Public Secondary Schools, Saint Paul Technical College, Inver Hills Community College, Dunwoody Institute, Metro State University, University of Minnesota, the State Department of Education, and the Saint Paul Chamber of Commerce. The result of these agreements will be a sequenced curriculum based on common student outcomes. A sequenced curriculum promotes continued learning and smoothes the transition from the secondary to the postsecondary level without students experiencing delays or duplication in learning.

Career pathways

Sequences of courses to attain technical employment.

CORD

A commercially developed applied academics curriculum from the Center for Occupational Research and Development.

Curriculum integration

The blending of vocational and academic skills and perspectives through a variety of approaches including cooperative learning, team teaching, work simulation, and workplace learning. It adds additional relevant content, making connections between theory and practice. This curriculum approach empowers students, leading towards an improved workforce and a better community.

4+2+2 Program

The articulated, competency-based, technical curricula which links the four years of secondary education with the first two years of postsecondary education at the community college or vo-tech with the option to complete the two years necessary to complete a bachelor's degree.

Horizontal and vertical integration

Curricula which flows in either direction across disciplines and institutional barriers.

Sequential curriculum

Coursework which promotes continued learning, through a logical step-by-step instruction. It smoothes the transition from the secondary to postsecondary institutions, avoiding delay or duplication of course content.

Target population

All secondary students interested in postsecondary pathways that lead to the preparation for technical careers. Students will have the opportunity to enroll in targeted curriculum areas arranged around technical career clusters. Continuation in this program allows students to explore a variety of career choices. Students will enter postsecondary institutions better prepared in both technical and academic skill areas.

Tech Prep

Student-centered education which identifies an integrated vocational and academic curriculum provided by secondary and postsecondary institutions. Ultimately this results in a better prepared student, competent in attitude and skills for a world-class workforce.

Technical career clusters

Identify a course of study for related technical careers.

STUDENT OUTCOMES

The State of Minnesota is in the process of developing a results-oriented graduation rule with specified student outcomes. The Saint Paul School Board has established its own graduation outcomes that are consistent with the state's proposed new rule. The following points summarize the district's student outcomes (see Appendix A for a complete listing of outcomes):

- Practices critical and creative thinking skills
- Directs own learning
- Communicates effectively
- Interacts effectively with others
- Acts responsibly as a citizen
- Makes career and other life decisions

In addition to the graduation outcomes already established by the Saint Paul School Board, we propose to add the following outcomes specifically for the Tech Prep program. The Tech Prep student will

- develop an individual plan of study leading to a technical career,
- acquire the necessary skills to succeed in the postsecondary course of study leading to his/her career path, and
- participate in real work-site experiences.

STRUCTURE OF THE INTEGRATED TECH PREP PROGRAM

The structure of the integrated Tech Prep program is multifaceted. From the ninth- and tenth-grade integrated curriculum foundation, eleventh- and twelfth-grade students have access to five clusters, now in the pilot stage, for future career preparation. Crossing these clusters will be apprenticeships, internships, and related part-time employment opportunities. After completion of high school, these clusters can lead to employment and/or to postsecondary training at a technical college, community college, and/or four-year college or university.

Program Areas/Occupational Clusters

- Automotive Technology
- Business
- Child Development
- Graphics Communication
- Manufacturing Technology

Progress through this program is summarized by the chart below:

9th - 10th	11th - 12th	13th - 14th	15th - 16th
Career Planning	Integration of Vocational and Academics	Employment	Employment
Integration of Vocational and Academics	Internships	Internships	Internships
	Youth Apprenticeships	Youth Apprenticeships	Baccalaureate Degree
	Mentoring and Shadowing	Associate Degrees	
		2-Year Diploma Programs	

The Tech Prep program sequence begins in the ninth grade. In grades nine and ten there is a common curriculum for all students. In the eleventh grade, students may choose from among several Tech Prep focuses. The Automotive, Business, and Child Development clusters will be developed first. The Graphic Communications and Manufacturing clusters will be developed next.

During the eleventh- and twelfth-grade Tech Prep sequences, students may participate in apprenticeship, internship programs, and/or career-related part-time employment. At high school graduation, students may proceed either to a postsecondary program or related employment in a career area.

Completion of the secondary school level Tech Prep focus prepares students for admission to a technical college, community college, or a four-year college/university. In some cases, articulation agreements may allow for the transfer of credits as part of two- or four-year degree programs.

GOALS AND STRATEGIES

Goal 1: To increase students' vocational and academic preparation to enter a postsecondary system.

Strategies:

- Design a Tech Prep program that integrates vocational and academic subjects. This design will utilize needs assessment, initial agreements, development of courses, training of staff, and a guidance plan.
- Promote the Tech Prep program through networking, staff and community awareness activities, and promotion and marketing of the program to students and their parents.
- Implement the Tech Prep program through the purchase of materials and equipment and through recruiting and registering those students who may profit from the program.

Goal 2: To raise self-esteem for all students.

Strategies:

- Build into the Tech Prep program initiatives which allow students to identify with the program direction, status, and local employers' support.

- Make available multiple workforce exit points to students throughout the 4+2+2 sequence.

Goal 3: **To encourage collaboration among schools and business/ industry.**

Strategies:

- Recruit additional partners from business and industry to participate in the curriculum cluster teams.
- Form an advisory board consisting of current and newly recruited business and educational partners.

Goal 4: **To strengthen curriculum coordination among educational partners.**

Strategies:

- Provide combined inservice opportunities for secondary and postsecondary teachers during academic school year 1993-1994. (See Appendix B.)
- Establish program area committees between secondary and postsecondary institutions for the purpose of curriculum writing and ongoing communication.
- Allow time for class visits between programs.
- Provide teacher exchanges.
- Provide summer institutes for secondary and postsecondary program area instructors.
- Secure written articulation agreements between participating educational institutions.

Responsibility for the planning of the goals will be assigned to a steering committee consisting of secondary and postsecondary staff as well as representatives from business, industry, and appropriate labor forces.

Responsibility for the design of the goals will be assigned to a collaborative curriculum development committee consisting primarily of a team of secondary and postsecondary teachers, curriculum writers, and business and labor consultants.

Responsibility for the implementation of the goals will be assigned to teams of secondary and postsecondary instructors and business and labor consultants.

SECONDARY AND POSTSECONDARY ARTICULATION

There are a number of factors essential to the success of a secondary/postsecondary written articulation agreement. These include increased communication among all educational, business, and community partners; planning time for curriculum development and implementation; staff development opportunities for all partners; and commitment by administration at all levels. A successful secondary/postsecondary written articulation agreement must be a collaborative effort among these partners, resulting in a sequenced curriculum based on shared student outcomes allowing a smooth school-to-work transition.

PARTNERSHIPS

Initiating with two partnerships in 1983, Humboldt Secondary Complex is presently involved with fourteen active collaborations (see Appendix B) with postsecondary and business institutions. At this time, Humboldt's partnerships with Saint Paul Technical College and Inver Hills Community College need to be formalized. In addition to the current and pending partnerships, we see the need to develop additional partnerships for the Tech Prep program. Critical areas for new partnership development fall into three distinct areas: (1) business and industry skill assessment, (2) community-based support programs, and (3) family involvement programs. These new partnership areas are crucial to meeting goals of the Tech Prep programs, particularly students' self-esteem and business and industry skill assessment.

Within business and industry we see the need to expand our capacity to continually update our (and students') understanding of the expectations and requirements for knowledge, skills, and attitudes within the targeted career clusters. To initiate this partnership we plan to

- identify key employers along with their suppliers and customers in each of the five career clusters;

- solicit participation in ongoing series of quarterly meetings to review required knowledge, skills, and attitudes;
- include postsecondary partners in quarterly meetings;
- update curriculum requirements and articulation agreements as required; and
- use business and industry skill assessment teams to provide "customer satisfaction" data to all education systems in partnership.

Successful implementation of Tech Prep will require continual enhancement of community-based family and student support systems. These programs are critical to getting and keeping students ready to participate in the program. This partnership will require expanded visions with both our current business partners. Also, we will need to cultivate partnerships with key community groups who, while currently supplying family and student support programs, are not connected with the educational system. This partnership may be developed on two tracks:

1. Work with business partners and the Chamber of Commerce to leverage existing corporate contributions (through United Way or other cooperative fund). Ideally such contributions could still support community programs, but such programs would be coordinated with and/or provided in schools and programs like Tech Prep.
2. Develop a proposal to the state (along with the school district, county, and local health provider) for a grant to plan and develop an integrated family and student support plan related to a Tech Prep program.

A final need for new partnership development is in the area of parental involvement. Building on the current parent partnerships developed through existing partnerships (PANGEA, business, and higher education partnerships), this new program needs to focus on the development of strong parental involvement in the career exploration and postsecondary decision making required in the Tech Prep program. Such a partnership would necessarily be linked to the marketing of Tech Prep. The partnership will be more individualized and more formal than existing parent involvement programs.

Required partnerships to implement the Tech Prep program ideas described in this program are multifaceted. Success will depend on three areas of broad community participation: (1) business and industry partnerships, (2) postsecondary and government institution partnerships, and (3) community/parent partnerships. This program will be built on a strong foundation of existing partnerships and a demonstrated willingness to both expand those existing agreements and develop new alliances.

BUSINESS AND INDUSTRY COLLABORATION

Business and industry collaboration is already a valuable component of the program for students at Humboldt High School. This involvement has grown to fourteen partners. Additional partners will be sought for the technical clusters not already represented. The partners will be involved in active advisory committees in their cluster areas. In addition, an overall advisory committee, with representatives from each specialty area, will be formed to act as a steering committee to oversee business/industry issues involving the entire project. Businesses will be involved in the planning and development of curriculum activities and strategies for the cluster areas; in recruiting cluster partnerships; and in providing student apprenticeships, mentoring opportunities, and shadowing experiences.

As a result of the collaboration, all groups will benefit. Specifically, we feel that business/industry will benefit from this collaborative effort in the following ways:

- Business, industry, and labor will develop a greater understanding of the issues facing educators and students.
- Business, industry, and labor will be provided with a better-prepared workforce.
- Business, industry, and labor will have preferential use of school facilities for their activities.
- Business, industry, and labor will have opportunities to interact and communicate with educators in secondary/postsecondary settings (shared expertise).
- Shared training programs between business and education will be provided.
- Educators will be more aware of and proactive to the needs of business and industry due to ongoing communication and dialogue.
- Business and industry will project images that are supportive of public education.
- Business and industry will build new and creative partnerships among public schools.

During the first year of planning, additional partners from business and industry will be recruited to assist in the development of the Tech Prep program and to commit to providing opportunities where students can experience work-site situations.

Current business partners, along with identified staff, will form the steering committee which in turn will be responsible for the initiation and/or maintenance for the Humboldt Integrated Tech Prep Project.

ARTICULATED CURRICULUM

Articulated curriculum will be created for multiple technical programs identified as clusters in automotive, business, child development, graphic communications, and manufacturing. This articulated curriculum will be developed and updated with input from program advisory boards which include representatives of industry, secondary, and postsecondary education to ensure consensus and validity of the program. Attention to graduation and entrance requirements will assure local and state support.

Each cluster will identify skills integral to successful preparation for and completion of training in the cluster area. An evaluation of current courses will determine which vocational and academic courses will need revision and which new courses need to be developed. Strong emphasis will be placed on applied academics. Staff development will include preparation for the instruction of new or revised courses as part of the required Tech Prep curriculum.

It is the goal of this plan that the Tech Prep curriculum reflect the 4+2+2 model. The four years of secondary instruction incorporate students starting in the ninth grade who will participate in applied academics, youth apprenticeships, and postsecondary options. The two years will continue into technical college or community college coursework. The additional two years will be offered for students interested in pursuing a four-year college degree.

During the 1993-1994 academic year, the business cluster will identify and develop the core curriculum and plan for its implementation. Staff development opportunities will prepare all staff for this implementation. Present collaborations with elementary and secondary schools will be recognized and blended with the Tech Prep plan.

CURRICULUM DEVELOPMENT

During the 1991-1992 school year, instructional staff from both the secondary school and the technical college began investigating curriculum options that integrate vocational and academic skills. CORD materials were used as a starting point for the pilot program in Applied Math which was implemented at both levels during the 1992-1993 school year. This pilot was an experimental evaluation of CORD Applied Math Curriculum. Staff time was allocated for development, implementation, and evaluation of these projects. Other efforts at the secondary level to initiate integrated vocational and academic curriculum include Food Service/Science and Math, as well as Automotive/World Language and Graphic/Language Arts. At this time, credit articulation agreements have also been developed between the secondary and technical college levels in business. (See Appendix C.)

Future plans at both the secondary and postsecondary levels continue to identify opportunities for vocational and academic integration, as well as an integrated Tech Prep curricula in the following areas: business, automotive technology, child development, manufacturing technology, and graphics communication. These areas were identified through an advisory board process (members include representation from secondary, postsecondary, business, and industry) because of projected employment trends and current curriculum development at Humboldt Secondary.

In the development of a Tech Prep curriculum, specific attention will be given to industry and business needs. A curriculum development team representing secondary, postsecondary, and the business community will be responsible for developing student outcomes relating to these needs. Curriculum development will reflect these student outcomes resulting in a plan for multiple exit points throughout the 4+2+2 sequence.

During the 1993-1994 school year, curriculum planning and development will begin with the business career cluster. Commercial applied-skills material will be reviewed by the curriculum committee for possible use and/or adaptation. It is the goal of this plan that the business career cluster initiate curriculum implementation at the start of the 1994 school year. The remaining clusters will be developed and implemented by the start of the 1996 school year.

Curriculum development will be funded by applications to Carl Perkins, local staff development funds, and local businesses and industry. An active role by local employers, including participation on advisory boards, is crucial to the success of valid curriculum development. The overall goal of articulating curriculum is to smooth the transition from the secondary to postsecondary level without duplication or delay.

GUIDANCE AND COUNSELING

Counselors play a major role in the Tech Prep program. Through individual student contacts and group sessions they provide a positive introduction to the Tech Prep program to eighth graders. Throughout high school, counselors continue to help students and their parents to objectively consider technical careers as an appropriate choice.

Because most technical careers demand postsecondary education, counselors help students to understand and to choose a pattern of technical and academic coursework that will allow the students to meet the rigors and attitudinal requirements for continued educational and career success.

Counselors are critical in guiding students through the process of career choice. They know students' aptitudes and interests through objective measures, student records, and personal contact. Counselors are also aware of career requirements and can assist students in evaluating the congruence of the demands and rewards of a career with students' personal characteristics.

The Tech Prep program will require significant collaboration across institutions so that guidance and counseling systems coordinate their services, share materials, and provide connections for students as they move through the multiple Tech Prep institutions. The consortium will take responsibility for developing workshops to coordinate guidance and counseling.

MARKETING THE PROGRAM

A Tech Prep marketing committee will develop a strategic marketing plan which will include the design of a statewide logo and the creation of a video. The cost of these projects could be funded jointly by all state consortia.

The Saint Paul Consortium will use its current media materials and develop new materials to target a broader audience for external marketing. Proposed materials highlighted with the Tech Prep logo will include videos, handouts for students, business cards for staff, and a comprehensive brochure on the program. Preparation of a public service announcement to be broadcast on local television will reach a broad audience and promote a positive image of Tech Prep programs.

Internal marketing strategies will be conducted through staff development workshops, meetings with business and industry, and student career assemblies and counseling.

AT-RISK STUDENTS AND RELATED PROGRAMS

The designation of at-risk students is crucial to the development of relevant programs to assist the at-risk students who are interested in Tech Prep and its options. The development of a Tech Prep program will build on existing programs for at-risk students. Tech Prep development also provides an opportunity to develop programs for these students in concert with total program development. The following sections provide an overview of current and potential descriptions of at-risk students, existing programs for at-risk students, and an overview of the integration of programs for at-risk populations within the Tech Prep model.

Definition of At-Risk Students

At-risk *secondary* level students are defined as those students who exhibit the following:

- *Low performance on SRA test scores.* Students below 34th percentile would be deemed at-risk. Approximately 30% of students currently fall below the set measure. SRA testing statistics compiled for the past three years (Composite National Percentile Scores 1989-1990: 44; 1990-1991: 49; and 1992-1993: 42) indicate not only lower than average scores but erratic performance.
- *Socioeconomic distress* as measured by numbers of students who receive free or reduced price lunches. Currently, 72% of Humboldt students receive such meals.
- *Attendance rate deficiencies* numbering more than 15 absences in one semester. Current attendance levels indicate a 12-15% daily absenteeism. Possible reasons for such high absenteeism are youth employment, student parents, dysfunctional families, low socioeconomic backgrounds, high mobility rates (over 600 out of 1150 students changed attendance areas last year), and young community profiles (35% of total population is under the age of 18).
- *Credit deficiencies,* defined as a loss of two or more credits out of a potential seven credits available in a semester. Current measures of credit deficiencies indicate that at least 25% of students are lacking two or more credits.
- *Low written and oral communication skills.* Currently close to 50% of the Humboldt population has low written and oral communication skills as measured by standardized tests and competency assessments.

At the *postsecondary* level at-risk students are identified through standardized reading and basic math assessments. At the Technical College level, students identified through initial assessment as being at-risk may be referred to additional levels of assessment. Such assessment may include additional reading and mathematics assessment; interest inventories and aptitude assessment; as well as prerequisite course/program assessment, personal inventories, and transcript review. If needed, the following assistance is available: adaptive planning and additional diagnostic assessments for special needs and supplemental services and other assistance necessary to meet programmatic standards and mandatory entrance criteria.

Existing Services and Programs for At-Risk Students

Special services for at-risk students currently exist and expansions are required in some areas. Current programs at the *secondary* level are as follow:

- *Consent Decree Program* for Hispanic students who fall below 34th percentile on SRA tests or who have a language difficulty. Program allows the hiring of bilingual teachers to assist with academic progress and language skills, developing individual education plans, involving parents in their child's education, and running a parent advisory program.
- *Indian Education Program* which provides services similar to the Consent Decree Program described above.
- *One out of Three Program* targeted at most at-risk ninth-grade students. It supports lower teacher/student classroom ratios in English and social studies courses. Students are given extra attention and incentives for achievement.
- *Tutorial programs* with higher education institutions, which provide university and college student tutors who work in both the classroom and after-school settings. Tutors provide assistance across the curriculum in addition to serving as role models.
- *Grade-Level Houses* to provide a comprehensive course structure for seventh- and eighth-grade students. Students are grouped in houses for four periods a day; they work with the same four teachers and focus on general academic achievement and self-esteem.
- *ESL classes* to provide assistance to students with deficient English language skills.
- *Area Learning Center Program* which assists students who have lost credit in required areas to work on deficient credits after school within their home school. Regular teachers work with students who need additional time after school to give them extra help in these subjects.
- *Numerous business and higher education partnerships* to focus on higher education achievement and provide assistance and incentives for students to that end.

Current programs at the *postsecondary* level for at-risk students include the following:

- *Development courses* to upgrade and strengthen academic abilities.
- *Vocational Education Advisors* to provide assistance in the development of peer and community support along with services necessary for success.
- *Bilingual Program* to assist limited-English speaking students.
- *Vocational Assessment Career Training Program* which provides assessment and remediation for career training.

- *Tutorial services.*
- *Reading and Math Laboratories* which provide academic assistance and individualized instruction to help students achieve higher levels of reading and math competency.

Need for Additional Programs within Tech Prep

The Tech Prep program will impact the success of many students deemed at-risk. However, coordinated programs for at-risk students within the Tech Prep program need to be developed, with particular attention to early intervention with these students. To develop a seamless set of programs which addresses the needs of at-risk students, three strategies need attention. They include

- developing a specific section of the articulation agreement to outline student services, especially for at-risk students.
- appointing a cross-institution planning and advisory group to develop and implement specific programs in all institutions.
- concentrating efforts at the secondary level and using specific strategies to provide the means for early intervention of at-risk students in the Tech Prep program. Many of the existing programs at Humboldt can be redesigned to fit the needs of at-risk Tech Prep students.

LOCAL POLICIES

- **Equal Opportunity**
  All students in public education in the state of Minnesota have the opportunity to attend any number of secondary and postsecondary institutions through the open enrollment options plan, the postsecondary options plan, and minority encouragement programs. At all levels of education, potential students are eligible for many programs which make attendance possible, regardless of deficiency. In addition, all elementary and secondary institutions are required to be multicultural, gender-fair, and disability-fair in their course offerings and accommodations. These same programs and requirements will affect and apply to Tech Prep programs, ensuring that this program is market sensitive and driven.
- **Student Recruitment**
  The integration of vocational and academic courses results in recruitment choices based on student career focus, not institutional policy.

- **Teacher Certification**
  Teacher certification is done by the state department of education through a state board of teaching. The development of appropriate teacher preparation programs is necessary for the success of a Tech Prep program. The Tech Prep program will work with the higher education partners which have teacher preparation programs. It will also work with the state board of education which oversees teacher certification. Both activities will be geared toward the development of an incoming faculty which understands the aims and practices of Tech Prep.

- **Teacher Placement**
  Existing faculty at the secondary level will be encouraged to take primary ownership of the developing Tech Prep program. To facilitate such ownership, Humboldt will request that the Tech Prep program be designated a specialty area. Such action will secure the Tech Prep teaching positions and allow specific recruitment to the program. Existing precedent suggests the designation is likely.

- **School Calendars**
  School calendars are a problem both within and between institutions. Of critical importance for the Tech Prep program is the coordination of time for staff development, program planning, and curriculum development. This will be an issue for the multi-institution planning group, focusing on coordinated time for secondary and postsecondary faculty to meet.

- **Student Selection Criteria**
  Given the current level of institutional choices available for students in Minnesota, entrance criteria are minimal. Providing the kind of assessment (achievement and interest) which allows students to make the decisions which serve as selection control is important. Also critical is the development of career cluster areas which provide decision focus.

- **Secondary/Postsecondary Articulation**
  Written formal agreements between institutions are necessary and do not currently exist. These agreements must stipulate required student outcomes, required and transferable courses, and common student support mechanisms. The existing Saint Paul Tech Prep Consortium, of which this project is a part, will work on these articulation agreements over the next year, using Humboldt as a pilot site.

- **Job Placement Services**
  Critical issues are variations in degrees of accountability regarding job placement, variations in placement programs, and students' understanding of responsibilities in placement. As integrated and articulated curriculums are developed, coordination of job placement ideals will be developed. Attention to change and coordination of job placement services across institutions will have to stem from those ideals.

- **Assessment**
  Students will still be required to meet general competencies and student outcomes, regardless of enrollment in specific programs. These competencies and student outcomes are developed at both the district and state levels and may or may not be consistent with Tech Prep goals.

- **Work Experiences**
  Programs currently exist to help students with work experiences but those programs do not assist students in linking their work experiences to potential programs like Tech Prep does. Current student employment programs at both secondary and postsecondary institutions will need to be revised. The programs need to better utilize current and potential work experiences in career exploration and in skill assessment.

- **Student Certification**
  Currently the issuance of a high school diploma is both credit and competency based. The competency level is ninth grade, which is too low for both employers and some postsecondary institutions. As the state continues its course toward requiring demonstrated student outcomes, these levels may rise to an employment-appropriate level.

- **Role of Proprietary Schools**
  The critical issue with proprietary schools is the willingness and capacity of such schools to deal with the change to educational outcome focus rather than credit-based credentials. This issue is a central part of discussion at the state policy level as the state moves to outcomes-based graduation criteria for all students.

STAFF DEVELOPMENT

Staff development is essential to the success of the Tech Prep program. It will be necessary for all staff at each of the educational sites and businesses to take ownership. For this to happen, a variety of opportunities must be made available, addressing numerous areas. (See Appendix D.)

During the 1993-1994 school year, staff development will focus on developing a general understanding of the Tech Prep philosophy, communicating Tech Prep goals, and interpreting the various roles to all educational staff and the business community. It will be of extreme importance that all individuals become prepared to understand the responsibilities of each partner. Staff development addressing the above areas will include the staffs at both the secondary and postsecondary levels. Joint staff development opportunities between the various institutions will be explored and implemented at every opportunity.

Staff development opportunities will also be made available to secondary and postsecondary staff members as individuals or small groups. These opportunities will address the planning and development of cluster curriculum and applied academics starting with the Business Cluster. They will also include the training of these individuals in the necessary Tech Prep curriculum areas and allow for opportunities for implementation. The administration at each of the education or business sites will provide leadership and actively seek individuals interested in participation.

Tech Prep training and inservice opportunities will be assisted by the individual educational and/or business sites' staff development committees. These committees will also assess and provide further direction as we progress through implementation. Funding will be obtained through the staff development budget at each site.

PROGRAM EVALUATION

There are two key areas of focus for program evaluation:

1. Measurement of compliance with state and national guidelines
2. Measurement of the success of the program locally

The Humboldt Tech Prep project will use the format set forth in the national evaluation (developed by Mathematica Policy Research, Inc.) to measure compliance. In addition to that evaluation format, the project will focus on program success as described below.

Evaluation of the success of the Tech Prep program will depend on measures of program components, as well as measures of student success and involvement. Part of the program evaluation will include qualitative and quantitative assessment, as well as standardized and alternative forms of measurement (e.g., portfolios). These evaluations must span the continuum of the institutions involved in the Tech Prep program and must provide continual feedback to those institutions for use in constant program improvement. The development of measures to provide student and institution-specific data which can build both accountability lines and the capacity to meet continually changing expectations is critical.

Measures to be developed and used across systems include items in three key areas:

1. Student success
    - retention rate
    - attendance
    - achievement of outcomes
    - postsecondary plans and realities
2. School process enhancement
    - curriculum content (e.g., integrated courses)
    - level and extent of team teaching
    - student feedback on instructional quality
    - faculty feedback on process quality
3. Customer satisfaction
    - postsecondary feedback on student preparedness
    - employer feedback on student preparedness
    - parental feedback on instructional and program quality

Both areas of program evaluation require attention to the following key issues:

- The development at the state and district level of assessment processes linked to related graduation outcomes.
- The development of coordinated student tracking and information systems across institutional lines.

STUDENT ASSESSMENT

The Humboldt Integrated Tech Prep Project will work with the Saint Paul Public Schools' Research and Evaluation Department and the Minnesota Department of Education Assessment Team to formulate appropriate student assessment measures.

Areas for assessment may include

- student attitudes toward technical careers,
- quality of individual career plan,
- successful worksite learning and performance,

- individual attendance,
- increase in the percentage of credits completed, and
- student attitudes towards school and learning.

BUDGETARY AND FISCAL CONSIDERATIONS

Staff development monies currently exist in the budgets of each of the institutions. Funds will be requested from the Saint Paul Tech Prep Consortium to operate as a pilot project. Funded activities will include orientation for staffs, training in Tech Prep curriculum, and applied academics curriculum development. Regular budgets will be used to enhance the Tech Prep curriculum. Grants and revenue from materials generated through Tech Prep products will be pursued to secure additional resources not supplied by existing institutional budgets. The budget will reflect the following needs:

- *Staff*—Five secondary, totaling $25,000.00 and five postsecondary, totaling $25,000.00.
- *Stipends*—Curriculum writing, promotional work, and business visitations.
- *Substitutes*—Curriculum writing, site visits, assigned meetings, team planning, and curriculum sequencing.
- *Consultants*—Staff orientations and Tech Prep practitioners.
- *Clerical support*—Preparation and reproduction of promotional and instructional materials.
- *Instructional and promotional materials*—Tech Prep software, curriculum, and instruction.
- *Equipment*—Computers, computer cables, machinery, calculators, technological equipment, and professional videos.
- *Promotional materials*—Brochures, videos, business cards, and public service announcements.
- *Assigned meetings*—Conferences, seminars, and staff development.
- *Travel*—Site visits and other optional conferences/meetings.
- *General supplies*—Reproduction, postage, and communications materials.

APPENDIX A

Standards Task Force
Saint Paul Public Schools
(Draft—revised 6/1/93)

Comprehensive Outcomes

The Saint Paul Public Schools graduate does the following:

I. Practices Critical and Creative Thinking Skills:

- identifies and analyzes a variety of thinking processes and problem-solving strategies
- applies a variety of thinking strategies to construct meaning, make decisions, solve problems, and implement plans of actions
- relates and connects learning to new and familiar real-life settings
- analyzes the interrelatedness of systems, people, and ideas
- demonstrates an openness to new ideas

II. Directs Own Learning:

- identifies areas of personal interest
- recognizes and adapts personal learning styles
- demonstrates study skills and test-taking strategies
- performs realistic self-assessment, sets measurement goals, responsibly manages the process of achieving them, and evaluates results
- identifies and uses technology, information, and other resources to facilitate and enhance learning
- demonstrates initiative, works independently, and shows perseverance

III. Communicates Effectively:

- uses communication skills appropriate to audiences and purposes
- demonstrates reading, writing, and speaking in a variety of contexts
- listens attentively and responds thoughtfully
- investigates ideas and applies media skills to facilitate communication

- expresses ideas persuasively
- organizes, analyzes, synthesizes, and evaluates information

IV. Interacts Effectively with Others:

- develops a positive view of self when working with others
- demonstrates sensitivity to the emotional and physical well-being of self and others
- participates as a team member in establishing and pursuing group goals and products
- works productively with males and females from diverse backgrounds
- works toward agreements and resolves conflicts nonviolently
- demonstrates adaptability and flexibility
- demonstrates respect for integrity and honesty

V. Acts Responsibly as a Citizen:

- demonstrates a respect for human differences and recognizes the interdependence of people in local and global communities
- recognizes the contributions of peoples of diverse cultures and abilities
- practices stewardship of the environment
- recognizes the characteristics of leaders and supports leadership on behalf of the common good
- participates in and contributes to the community
- investigates and understands the complexities of local and global issues
- understands the rights and responsibilities of citizenship in a democratic society and prepares for direct participation in the democratic process

VI. Makes Career and Other Life Decisions:

- understands career options and lifework planning processes
- develops awareness of workforce and societal trends
- anticipates changing work environments and understands the need for adaptability

- prepares to perform in a competitive society
- recognizes attendance as a prerequisite for success
- understands how technology affects quality of life
- recognizes the stages and dynamics of the life cycle
- applies knowledge, skills, and learning strategies to career and life choices

APPENDIX B

HUMBOLDT'S CURRENT PARTNERSHIPS

Active Partnerships Include the Following:

Business and Industry Partnerships:

- *Ecolab International.* Partnership includes career exploration, job shadowing, mentorships, science club activities, writing contests, and communication projects.
- *Saint Paul Chamber of Commerce.* Partnership (called Prepare Saint Paul) focuses on improving the quality of entry-level workforces and provides students with career development experiences, employment opportunities, and incentives to promote basic skills competencies and appropriate work attitudes.
- *Minnesota Timberwolves.* Partnership (called Project Rebound) is focused on programs which improve student attendance, academic achievement, and self-esteem.

K-12 and Postsecondary Partnerships:

- *Montessori Magnet.* Program emphasizes opportunities for self-expression, education in relation to the environment, and education as preparation for life.
- *PANGEA Magnet.* Program focuses on a unique K-12 collaborative approach to education through integrated curriculum, family involvement, and skills development for lifelong learning.
- *District Minority Encouragement Program.* Program provides instructional and mentoring support for identified college-bound minority students. The program guarantees financial support for students entering the University of Minnesota.
- *University of St. Thomas.* Partnership provides university-level academic English and science courses, along with university students for on-site tutoring.
- *University of Minnesota International Studies Department.* Partnership provides opportunities for students to participate in international studies and career exploration.
- *St. Olaf College.* Partnership focuses on programs such as Upward Bound, business ventures, student tutors and teaching, and summer school scholarships.
- *University of Minnesota.* Partnership (called College in the Schools) provides college-level composition and literature courses.
- *University of Wisconsin.* Partnership provides social studies and related programs for secondary students.

Community/Parent Partnerships:

- ***Community Service.*** Program (called Share and Care/Special Friends) provides opportunities for students to participate in community service activities and work with senior citizens and persons with disabilities.

Government and Other Partnerships:

- ***Federal Government & FEB Hispanic Employment.*** Program is designed to give K-12 students an understanding of careers in the federal government and the skills required in such jobs.
- ***National Center for Research in Vocational Education (NCRVE).*** Program connects five vocational and five academic instructors to integrate curricula.

APPENDIX C
TECH PREP PROPOSAL

Two-Year Associate Degree Business Programs—St. Paul Technical College
(offered jointly with Inver Hills Community College)

	Accountant	Office Systems Specialist	Computer Programmer	Microcomputer Support Specialist	Personnel Assistant	World Trade
Transferrable High School Courses	Keyboarding I-II Computer Applications I-II Accounting I-II	Keyboarding I-II Computer Applications I-II Accounting I-II	Keyboarding I-II Computer Applications I-II Accounting I-II	Keyboarding I-II Computer Applications I-II Accounting I-II	Keyboarding I-II Computer Applications I-II Accounting I-II	Keyboarding I-II Computer Applications I-II Accounting I-II
Recommended Preparatory High School Courses	Algebra Advanced Algebra Advanced Placement English College Prep English Speech	Algebra Advanced Placement English College Prep English Office Tech I-II Speech	Algebra Advanced Algebra Basic Programming Advanced Placement English College Prep English Speech	Algebra Advanced Algebra Advanced Placement English College Prep English Speech	Algebra Foreign Language Office Tech I-II Speech	Algebra Foreign Language Geography Speech

APPENDIX D
STAFF DEVELOPMENT

Participants	Training Activity	Timeline	Length
Advisory Board, Administration, Secondary and Postsecondary Faculty	Overview of Tech Prep Philosophy, Mission, Goals, and Outcomes	August 1993	1/2 Day
Selected Secondary and Postsecondary Faculty and Administration	Tech Prep and Applied Skills Workshops, Local, State, Regional, and National	August 1993-June 1994	15 Days
Secondary and Postsecondary Business Faculty and Selected Staff	Educational, Business, and Industry Site Visits	September-November 1993	7 Days
Guidance and Counselors	Plan and Design Career Assessment	August 1993-June 1994	5 Days
Secondary and Postsecondary Business Career Cluster Representatives	Career Cluster Articulation and Curriculum Planning	November 1993-June 1994	15 Days
Secondary and Postsecondary Business Career Cluster Representatives	Applied Academics Training	January 1994-April 1994	12 Days
Selected Secondary and Postsecondary Staff	Orientation to Career Cluster Development in Additional Areas	March 1993-August 1994	10 Days
Advisory Board, Administration, and Selected Secondary and Postsecondary Staff	Tech Prep Updates	Bimonthly	12 Days

NCRVE, MDS-770

LINCOLN HIGH SCHOOL/SWENSON SKILLS CENTER
COMMUNITY COLLEGE OF PHILADELPHIA
PHILADELPHIA, PENNSYLVANIA

Planning Document Developed at the NCRVE 1993 National Institute:
"Establishing Integrated Tech Prep Programs in Urban Schools"[*]
July 14-23, 1993

BACKGROUND INFORMATION

Philadelphia is a large city served by a public school system which enrolls nearly 200,000 students in 265 schools. The School District of Philadelphia is the largest school district in the Commonwealth of Pennsylvania and the fifth largest in the United States. There are 22 neighborhood comprehensive high schools which enroll approximately 38,000 students, 80% of whom are minority.

The Philadelphia high school curriculum includes precollege, general academic, basic academic, and vocational courses. A concerted effort is made to assure that students who plan to go to a four-year college enroll in the appropriate college preparatory courses. Other students choose either general—or basic academic—courses or vocational courses. Student achievement on standardized achievement tests in Philadelphia is generally below the state and national averages. The dropout rate is approximately 40%.

In 1988, the school district adopted a plan for restructuring the comprehensive high schools in Philadelphia. These schools stand at the intersection of two critical student transitions: from middle school to high school and then to employment and/or college upon graduation. The restructuring effort has the following three primary components:

1. Incorporating Shared Decision-Making/School-Based Management (SDM/SBM).

2. Fostering partnerships with community institutions and organizations.

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[*] This is a working paper. It has not been reviewed by either the NCRVE or the educational institutions/agencies where the authors are employed. Therefore, this paper represents the views of the authors only.

3. Developing instructionally focused charter schools within schools. These schools are "learning communities" of approximately 250 to 400 students designed and staffed by teams of teachers who are responsible for the development and delivery of the educational program. Each charter is organized around a theme (e.g., health, multiculturalism, business) and an instructional approach (e.g., interdisciplinary education, essential schools) which provide coherence to the curriculum.

The Philadelphia Tech Prep Partnership is intended to build upon and give added support to the school district's commitment to comprehensive restructuring, with an emphasis on articulating with charters within the schools. In addition, technical and career academies have a five-year history of success and are established in many of the high schools. They will play a major role in Tech Prep articulation.

Abraham Lincoln High School is a comprehensive high school which has served the Mayfair section of Northeast Philadelphia for more than 42 years. Once a seventh- through twelfth-grade school serving 5,000 students in four shifts, Lincoln currently has an enrollment of 2,000 students, of whom 40% are minority students from outside the school's neighborhood boundaries who attend via the school district's Voluntary Desegregation Program. The school offers a full range of curricular programs including college prep, industrial technology education, business, and vocational education. In addition, Lincoln has the only high school level Deaf and Hard of Hearing Program which serves both city and suburban high school age students. It should be noted that Lincoln was in the forefront of the restructuring movement in Philadelphia and has a nationally recognized interdisciplinary multicultural charter which uses authentic assessment as the primary vehicle for student evaluation. Other charters include a business charter; an academics applied to technology charter; and two of the first academies established in Philadelphia—an environmental technology academy and a horticulture academy.

Swenson Skills Center is located in the far Northeast area of the city and for the last 16 years has served a tenth- through twelfth-grade high school population from seven area comprehensive high schools (including Lincoln), as well as several parochial and private high schools. The Center operates on an alternating weekly schedule delivering vocational training in six career clusters. This offers students the opportunity to learn a broad spectrum of skills in a task-oriented, competency-based curriculum which is based upon industry standards.

Beginning in September 1992, the principal of Lincoln was given the administrative responsibility for Swenson, with the mission to blend the two schools to provide state-of-the-art vocational and academic education opportunities. To this end, scheduling at Swenson for September 1993 will now include the option for an AM/PM roster so students will have broader course selection options. In addition, 150 incoming Lincoln ninth graders will attend Swenson full-time in a program designated "The Fast Track," which seeks to combine a technology-oriented education with a rigorous academic program.

Community College of Philadelphia (CCP) is the third largest provider of postsecondary and technical education in the City of Philadelphia. Each year the college enrolls approximately 43,000 students in 63 associate degree and certificate programs and in a wide range of nondegree offerings. Forty-one or two-thirds of the degree programs are in vocational areas. Typically, 33% of the Fall semester freshman class enter CCP immediately after completing high school. In the Fall of 1991, 61% of all on-campus credit students were members of ethnic or racial minority groups. Fifty-eight percent of the college's full-time students and 25% of the part-time students received some form of financial assistance. Based upon the results of the CCP's mandatory English placement testing, approximately 35% of the students required basic skills remediation or English as a Second Language (ESL) before enrolling in college-level courses. Thirty-eight percent of almost 3,000 students enrolled in vocational programs were identified as educationally disadvantaged.

CCP and the School District of Philadelphia have joined together to work on implementing a unified approach to Tech Prep. The specific areas to be addressed are health, business, and engineering technology. This will require changes in curricula at both the high school and community college levels. Administrators, faculty, and staff will coordinate course offerings so that graduates from either level will be better equipped to enter the job market or to continue their education.

TEAM MEMBERSHIP

The Philadelphia Tech Prep Partnership consists of staff from the School District of Philadelphia, the Community College of Philadelphia, and the state of Pennsylvania.

Lincoln/Swenson

- Barbara M. Braman, Principal
- Don Testa, Department Head, Business Fine Arts, Industrial and Vocational Education
- Ronald Bevilacqua, Teacher, Masonry
- Kathleen M. Petrelli, Teacher, Desktop Publishing
- Terese M. Gecys, Guidance Counselor

Community College of Philadelphia

- Samuel Hirsch, Dean, Educational Support Services
- Doyal Siddell, Tech Prep Project Coordinator
- Bud Ruby, Department Head, Biology Department
- Tom Hughes, Department Head, Architectural and Construction Technology
- William W. Straff, Associate Professor of English
- Francine Hamilton, Counselor

State of Pennsylvania

- Michael Snyder, State Coordinator, Tech Prep

TECH PREP PHILOSOPHY

The Philadelphia Tech Prep Partnership brings together business, labor, industry, and education in a reform strategy designed to prepare all students for the 21st Century. Tech Prep will be evidenced by strong programmatic ties between high school and postsecondary institutions. It incorporates contextual learning with comprehensive career guidance and counseling in interdisciplinary programs.

DEFINITION OF TERMS

Academy

A business/education partnership that operates as a school-within-a-school made up of approximately 200 students in grades nine through twelve. The curriculum is integrated and is a vocationally interdisciplinary approach to traditional academic classes in various career areas. Academy students are prepared for postsecondary education training and/or employment in career fields. Academies are operated and supported by the private sector through the Philadelphia High School Academies, Inc.

"All Aspects of Industry"

This phrase is used to describe broad-based transferable skills which address most, if not all, areas within a given industry.

Articulation

An ongoing process involving planning, implementation, and maintenance of programs and services which eliminates duplication while reducing the gaps in the transition from the secondary to postsecondary education levels.

Charter

A learning community of approximately 250-400 students staffed by teams of teachers who integrate vocational, technical, and academic curriculum relative to themes and/or occupational clusters.

Integration

A process designed to organize the best curricular and teaching practices for the delivery of academic and technical content in an interdependent and interactive process.

Tech Prep Partnerships

A process to design, develop, and implement specific technical preparation programs which provide a nonduplicative sequence of progressive studies that combine at least the final two years of secondary with two years of postsecondary education.

Tech Prep Programs

The result of articulation agreements between educational institutions (secondary and postsecondary); study in an appropriate field of technology; a common core of math, science, and communications integrated with appropriate technologies; and placement in employment or transfer to four-year baccalaureate programs.

Vocational Education

Competency-based, hands-on instruction and training developed to meet standards of business and industry. Programs may be one to three years in duration. Craft advisory committees assist vocational instructors in the preparations of curriculum and specifications of equipment.

Vocational Skills

These are skills specific to individual vocational or occupational areas.

STUDENT OUTCOMES

Our mission is based on the following guiding principles that all students will be

- academically and technically competent through demonstrated knowledge of core subject areas;
- successful in realizing their potential and their individual career choices;
- self-directed, lifelong learners equipped with competitive decision-making and planning skills;
- responsible, self-sufficient, involved citizens;
- adaptive users of advanced technologies;
- environmentally responsible;
- healthy, continuously developing individuals;
- caring, supportive family and community members;
- economic and cultural contributors to their community; and
- effective users of leisure time.

We shall prepare all students so they are able to achieve the following outcomes:

Communications

- All students use effective research and information management skills, including locating primary and secondary sources of information with traditional and emerging library technologies.
- All students listen, speak, read, and write critically, using a variety of strategies to make sense of various kinds of complex texts.
- All students respond orally and in writing to information and ideas gained by reading narrative and informational texts and use the information and ideas to make decisions and solve problems.
- All students listen, speak, read, and write critically for a variety of purposes, including to narrate, inform, and persuade, in all academic and technical subject areas.
- All students analyze and make critical judgments when listening, speaking, reading and writing to enable them to separate fact from opinion; recognize propaganda, stereotypes and statements of bias; recognize inconsistencies; and judge the validity of evidence in speech, text, and the media.
- All students exchange information orally and in writing, including understanding and giving spoken instructions, asking and answering questions appropriately, and promoting effective group communications.
- All students listen to and understand complex oral and written messages and identify their purpose, structure, and use.
- All students compose and make oral and written presentations for each academic area of study that are designed to persuade, inform, or describe.
- All students understand, speak, read, and write in at least one language other than English.

Mathematics

- All students use numbers, number systems, and equivalent forms (including numbers, words, objects, and graphics) to represent theoretical and practical situations.
- All students compute, measure, and estimate to solve theoretical and practical problems, using appropriate tools, including modern technology such as calculators and computers.
- All students apply the concepts of patterns, functions, and relations to solve theoretical and practical problems.

- All students formulate and solve problems and communicate the mathematical processes used and the reasons for using them.
- All students understand and apply basic concepts of algebra, geometry, probability, and statistics to solve theoretical and practical problems.
- All students evaluate, infer, and draw appropriate conclusions from charts, tables and graphs, showing the relationships between data and real-world situations.
- All students make decisions and predictions based upon the collection, organization, analysis, and interpretation of statistical data and the application of probability.

Science and Technology

- All students understand, explain, and apply, in speech and writing, the way in which scientific principles of chemical, physical, and biological phenomena have developed and relate them to real-world situations.
- All students demonstrate knowledge of basic concepts and principles of physical, chemical, biological, and earth sciences through the use of concrete examples.
- All students use and master materials, tools, and processes of major technologies which are applied in economic and civic life.
- All students explain the relationships between science, technology, and society.
- All students construct and evaluate scientific and technological models to explain or predict results.
- All students develop and apply skills of observation, data collection, analysis, pattern recognition, prediction, and scientific reasoning in designing and conducting experiments and solving technological problems.
- All students evaluate advantages, disadvantages, and ethical implications associated with the impact of science and technology on current and future life.
- All students evaluate the impact on current and future life of the development and use of varied energy forms, natural and synthetic materials, and production and processing of food and other agricultural products.

Environment and Ecology

- All students understand and describe the components of ecological systems and their functions.
- All students analyze the effects of social systems, behaviors, and technologies on ecological systems and environmental quality.
- All students think critically and generate potential solutions to environmental issues.

- All students evaluate the implications of finite natural resources and the need for conservation, sustainable development, and stewardship of the environment.

Citizenship

- All students demonstrate, in speech and writing, an understanding of major events, groups, and individuals in the historical development of Pennsylvania, the United States, and other nations, and describe themes and patterns of historical development.
- All students demonstrate, in speech and writing, an understanding of themes and patterns of geography, know the location of major bodies of water, land masses, and nations, and describe the relationships between geography and historical, economic, and cultural development.
- All students describe, in speech and writing, the development and operations of economic, political, legal, and governmental systems in the United States, assess their own relationships to those systems, and compare them to those in other nations.
- All students examine and evaluate, in speech and writing, problems facing citizens in their communities, state, nation, and world by incorporating concepts and methods of inquiry of the various social sciences.
- All students develop and defend, in speech and writing, a position on current issues confronting the United States and other nations, conducting research, analyzing alternatives, organizing evidence and arguments, and making oral presentations.
- All students explain, in speech and writing, basic economic concepts and the development and operation of economic systems in the United States and other nations, and make informed decisions about economic issues.

Appreciating and Understanding Others

- All students explore, understand, and analyze in speech and writing, the similarities and differences among varied cultural values and the contributions these groups have made to other groups and their own group.
- All students understand and analyze the history and nature of various forms of prejudice as they are presented in speeches, texts, and the media.
- All students understand and analyze the current problems facing communities in the United States and other nations as they are presented in speeches, texts, and the media.
- All students use interpersonal communication strategies to communicate, negotiate conflicts, and problem solve with others.
- All students use interpersonal and intrapersonal communication strategies to recognize the uniqueness, worth, and rights of themselves and others.

Arts and Humanities

- All students understand through speech and writing meanings they discover in works such as visual arts, music, dance, theater, and literature.
- All students are able to esthetically analyze in speech and writing works such as visual arts, music, dance, theater, and literature.
- All students understand through speech and writing the historical and cultural importance of visual art, music, dance, theater, and literature.
- All students demonstrate their understanding of the Arts and Humanities by performance and/or exhibition.

Career Education and Work

- All students explore the multiple purposes of work and the range of career options, including enterprise, and relate them to their individual interests, aptitudes, skills, and values.
- All students understand and analyze through speech and writing how changes in society, technology, and the economy affect individuals and their careers and require them to be lifelong learners.
- All students use academic and technical strategies needed to seek, obtain, maintain, and change jobs, including the use of oral communication, critical thinking, creative thinking, decision making, problem solving, and logical reasoning as resources to acquire and use information and to understand and improve the design of technology processes and systems.
- All students demonstrate and utilize the behaviors and habits necessary to seek, obtain, maintain, and change jobs including punctuality, dependability, initiative, working effectively with others, pride in work, task orientation, sociability, self-assessment, self-management, and honesty.

Wellness and Fitness

- All students understand and utilize a knowledge of safety practices and respond appropriately in various emergency situations.
- All students understand the value of good nutrition and utilize this knowledge to maintain healthy dietary habits.
- All students understand and utilize their knowledge of the human body to make critical decisions as they relate to health promotion, disease prevention, and disease control, including contemporary issues such as AIDS, tobacco, alcohol, and substance abuse.
- All students develop knowledge of physical fitness including aerobic fitness and skills in lifetime sports and outdoor activities to promote lifelong physical activity.

- All students understand and utilize team sports and other developmentally appropriate group activities to develop their leadership and cooperative working strategies.

Personal, Family, and Community Living

- All students, through speech and writing, demonstrate a comprehensive and thorough understanding of the family; its historical development; and the cultural, economic, and political factors affecting it.
- All students understand and utilize, as demonstrated through speech and writing, basic human development theories as they pertain to caregiving and child-care strategies.
- All students understand and utilize, as demonstrated through action, speech, and writing, the fundamentals of consumer behavior for managing available resources to provide for personal and family needs.
- All students understand and utilize interpersonal communication, decision-making, coping, and evaluation skills and apply them through actions, speech, and writing to personal, family, and community living.

STRUCTURE OF THE TECH PREP PROGRAM

Introduction

The specific program areas/occupational clusters that will be a part of our integrated Tech Prep program are health, business, and engineering technology.

A flexible and evolving curriculum which integrates traditional academic subjects with technical, hands-on experiences will enhance the instructional/learning process. This approach may include the development and use of applied academic subjects. This process will be accomplished through an interdisciplinary curriculum which emphasizes cooperative learning, authentic assessment, and the development of a multicultural perspective through both horizontal and vertical articulation.

It is anticipated that these programs/curricula may eventually affect a majority of our students. However, it must be stressed that these academically rigorous programs will focus on those students currently in the noncollege, general studies area. This curriculum will enable these students to become well-informed, contributing citizens and lifelong learners, prepared for the workplace and community settings.

Local Policies

Local school policies regarding educational issues vary from school site to school site. However, the following improvements will come about as a result of Tech Prep initiatives:

- There will exist a seamless transition for our students from the high school level to the postsecondary level.
- Having entered into an agreement with CCP, high school students will have the opportunity to move between the college prep and Tech Prep career paths, receiving training in skills and technical occupations over and beyond the regular high school curriculum.
- Bringing the two faculties (secondary and postsecondary) together will ensure coordinated course offerings, so that graduates from either level will be better equipped to enter the job market or to continue their education.
- As a team, teachers will have the opportunity to work together in developing structured academic opportunities for all students to understand the relationship between academic subject matter and real-life application.
- An integrated curriculum will enable students to use practical applications drawn from real-world and workplace situations in communication, mathematics, science, technology, and other subject areas.

Nothing written above should be construed to abrogate current contracts. Existing institutional policies and procedures will be followed.

Long-Term Goals (3-5 years)

- To design an organizational framework which will result in the development and implementation of a comprehensive Tech Prep Partnership between CCP and the School District of Philadelphia.
- To design a curriculum framework which will result in the development and implementation of Tech Prep programs in the three cluster areas of Health, Business, and Engineering Technologies.
- To develop and implement an inservice training process which provides information and skills training for secondary and postsecondary administrators, counselors, faculty, and business and industry representatives on their roles and responsibilities in planning, managing, and evaluating a comprehensive Tech Prep/Associate Degree Program.
- To develop and implement a marketing campaign which will provide information to students, parents, high school counselors, teachers, and employers on the

preparation needed for community college programs and on the careers available to high school and community college Tech Prep students.

- To develop and implement a support services framework which will ensure that each Tech Prep student has an individual learning plan that contains a career goal and related academic preparation.

Short-Term Goals (1-2 years)

Organizational

- To organize a high school unit team comprised of staff from CCP, Lincoln/ Swenson High School, and business/industry/labor partners to implement the Tech Prep program.
- To select appropriate secondary and postsecondary staff and business/industry/ labor partners to jointly review and define program curricula/competencies in Health, Business, and Engineering Technologies.
- To select appropriate committees to oversee staff development, marketing, and career counseling and job placement.

Curriculum

- To design and develop a competency-based curriculum.
- To identify and resolve curriculum issues.
- To design model cluster curricula in health, business, and engineering technologies (which will include career information and guidance programs) to be considered by each participating school.
- To develop criteria for determining articulated course sequencing and content.
- To establish competencies to be taught in each articulated course.
- To align articulated course contents and competencies to meet program and departmental requirements of the postsecondary institution.
- To determine mutually which programs, curricula, and/or courses will be articulated through an approved process.

Staff Development

- To assess the training needs of administrators, teachers, counselors, and other faculty.
- To develop and implement a planned staff development program to address the assessed needs.

Marketing

- To select unit team members to assess the marketing needs of parents, students, business/industry/labor, and the community.
- To develop marketing/promotional materials for public information activities to include announcements, press releases, news items, video, brochures, and statistical data.
- To plan and coordinate recruitment of students via open houses, career days, special events, and counseling services.

Guidance and Counseling

- To select unit team members to assess the need for support services.
- To develop a comprehensive career guidance program which includes individual career plans and portfolios.
- To develop career awareness and exploration programs.
- To provide support services to ensure the equal access in recruitment, enrollment, and completion of special population students.

SECONDARY AND POSTSECONDARY PARTNERSHIPS AND ARTICULATION

In July 1992, a three-year Tech Prep competitive grant fund was awarded by the Pennsylvania Department of Education to develop and implement a comprehensive Tech Prep Associate Degree partnership between Community College of Philadelphia and the School District of Philadelphia. Since that date, efforts have concentrated on hiring staff for the project, selecting individuals to serve on the curriculum development committee, recruiting business and industry representatives to serve in an advisory capacity, and providing staff development activities for those involved in the project's implementation.

Subsequent to a thorough needs analysis in 1991, CCP identified as a priority the need to further integrate basic academic instruction with vocational education in order to more fully address the needs of special population students while at the same time strengthening its existing set of career programs to reflect the evolving needs of the marketplace. As a result, a priority was established in the college's three-year local plan (Title II-c) to develop Tech Prep programs for five specific curricula: Medical Assisting and Office Management, Medical Laboratory Technology, Data Processing, Office Administration, and Electronics Technology.

Tech Prep achievements to date have been primarily with interested partners at individual schools. During this past year's interaction, CCP and the School District of Philadelphia have sought to introduce a broader and more comprehensive approach to Tech Prep implementation. The agreement is a culmination of these efforts and a genesis of the challenges to come.

The Community College of Philadelphia and the School District of Philadelphia 2+2 Tech Prep Partnership Agreement establishes the formation of a Tech Prep Steering Committee to provide expertise and make recommendations regarding the final design, implementation, and evaluation of the Tech Prep program. The minimum criteria established by the Agreement stipulate that the Tech Prep program must

- ***establish*** written articulation agreements which define a planned ***process*** and ***program*** which provides students with a nonduplicative sequence of progressive instruction leading to an advanced level of technical competence (as signified by award of an Associate Degree or Certificate to successful completers) in the student's chosen career field.
- is of at least four years' ***duration***.
- ***build*** student competence in mathematics, science, communications, and understanding of fundamental principles of technology through a sequential course of study (which may be delivered through applied academics).
- ***provide*** technical preparation in at least one field of engineering technology, health, business, or associated areas.
- ***lead to*** successful placement in employment and/or access to further higher education opportunities.
- ***provide*** direct involvement and consultation with business, labor, and industry.
- ***address*** access and achievement by members of special populations.
- ***provide*** high school students a comprehensive career guidance program that continues through postsecondary enrollment.
- ***provide*** a marketing plan to address parents and students in the program's design, implementation, and student recruitment.
- ***provide*** joint orientation and training sessions for administrators, teachers, counselors, advisors, and faculty of all partnership members.

EVALUATION

Program Evaluation

The internal evaluation processes for the planned activities will be both formative and summative. The formative evaluation process will be a vital component of the program activities. Formative evaluation will be used to modify approaches used in attaining the program objectives. The second component of the evaluation process is the summative evaluation. This component will focus on assessing the fulfillment of the objectives in terms of their contribution to the achievement of the Tech Prep program goal. The Steering Committee will develop and implement a comprehensive evaluation plan. The Program staff will collect information on an ongoing basis in order to

- assure the achievement of the objectives,
- identify any barriers to the achievement of stated objectives,
- assess results and outcomes achieved, and
- determine ways in which the program improved the ability of students to gain access to and succeed in a Tech Prep/Associate Degree Program and subsequently find work.

All of the project objectives are measurable and an evaluation plan has been developed for each of the project activities. The comprehensive Evaluation Plan will summarize how evaluations of the five objectives will contribute to evaluation of the total project. The Evaluation Plan will be organized around the four assessment student outcomes areas listed below in the "Student Assessment" section. This plan will identify what is being evaluated, the methods to be used, the individual(s) responsible for evaluation, the individual responsible for collecting or compiling data, and when it will be done.

The Evaluation Plan recognizes the need to collect, analyze, and disseminate data internally and externally. Internally, the results of the evaluation processes will enable the Steering Committee to modify activities, aid in the evaluation of staff members, identify policies and procedures which must be developed or revised, and ensure clear communications between CCP staff and Philadelphia School System staff. The plan also addresses performance and fiscal responsibility to grantor. Evaluation results which measure the partnership's success in achieving program objectives will be disseminated to state and partnership representatives in quarterly progress reports compiled from monthly reports from the Tech Prep staff and committee chairpersons. An Annual Programmatic and Fiscal Performance Report will be prepared by the Steering Committee and distributed to appropriate local and state officials.

Student Assessment

In order to meet the requirements of the Perkins Act for student outcome measures, data will be collected, analyzed, and reported in the following five main areas:

1. Academic achievement
2. Vocational and technical achievement
3. Developmental studies enrollment
4. Retention rate
5. Postsecondary continuation and achievement and employment outcomes

In addition, information on student outcomes for special population Tech Prep students will be collected, analyzed, and reported.

The foundation for student assessment is the statewide system of core performance measures and standards which can be found in Appendix B of this plan.

BUDGET

As mentioned earlier, in July 1992, a three-year competitive grant fund was awarded by the Pennsylvania Department of Education to develop and implement a comprehensive Tech Prep Associate Degree partnership between CCP and the School District of Philadelphia. Funding is provided for a Tech Prep Staff Coordinator, a Career Development Specialist, and a secretary. In addition, funds are provided for staff and curriculum development activities, instructional materials, and conference attendance.

For the 1992-1993 school year, the School District of Philadelphia received $6.5 million of Perkins Act funding. It is anticipated that in 1993-1994 the district will receive at least "level" funding. Philadelphia is the only district in the state of Pennsylvania that developed an RFP to allow schools with the highest percentage of special population students to write proposals on how the individual school would use Perkins money to begin or expand vocational programming.

To further the integration of technical and academic programs at Abraham Lincoln High School and its Swenson Skills Center Campus, an RFP was submitted and approved for $200,000 for the 1992-1993 school year. An RFP has been submitted for the 1993-1994 school year for "level" funding. Funding will be provided for curriculum and staff development and the purchase of computer systems.

Both CCP and Lincoln/Swenson funds will be available for implementation of the Tech Prep Program. In addition, both institutions will continue to make a commitment to administrative support.

It is anticipated that additional funding may be necessary to implement certain activities. To this end, funding will be sought via federal competitive grants; private foundations; and business, industry, and labor donations.

APPENDIX A

SECONDARY VOCATIONAL-TECHNICAL PROGRAMS

A. OUTCOME--LEARNING AND COMPETENCY GAINS:

1. Measure--Basic Academic Skills:

Secondary vocational student learning and competency gains, including progress in the achievement of basic academic skills, will be measured by the reading and math tests from the Pennsylvania System of School Assessment (PSSA).

Standard:

The test score mean of 12th grade vocational-technical students will be at or above the test score mean of 11th grade students. No standard will be set for 1992-93. If the vocational-technical score mean is below the state mean the standard will be an improvement in the vocational mean score. The specific level of improvement will be determined when baseline data is established.

2. Measure--Advanced Academic Skills:

Secondary vocational student learning and competency gains including progress in the achievement of more advanced academic skills will be measured by the number of advanced academic courses completed in math, science, and communications, including applied academics.

Standard:

Thirty-five percent (TENTATIVE) of all vocational completers will complete six or more semesters of advanced academic courses. If less than 35 percent of all vocational completers complete six or more semesters of advanced academic courses, then an increase of at least two percentage points in the percent of completers completing six or more semesters of advanced academic courses in the previous year will be considered as having met the standard.

B. OUTCOME--OCCUPATIONAL COMPETENCY GAINS:

The March 1992 Chapter 5 & 6 Regulations of the State Board of Education require that vocational-technical education programs include content based on occupational analysis, clearly stated performance objectives deemed critical to successful employment, and assessment of student competencies based upon performance standards. Consequently, the following measure will be used to measure occupational competency gains.

1. Measure--Completion:

The 12th grade students' occupational competency gains will be measured by comparing the number of completers to the number of students who began the vocational-technical program. Program completers will be those students who complete all requirements of the instructional program and who receive a diploma.

Standard:

A satisfactory standard of performance will be a program completion rate of 70 percent (tentative). If a completion rate of less than 70 percent is evidenced, then an increase of at least two percentage points in the completion rate of the previous year will be considered as having met the standard.

C. OUTCOME--PLACEMENT:

1. Measure--Placement Rate:

Secondary program performance will be measured by comparing the total number of completers to the number of completers 1) employed or 2) pursuing additional education or training or 3) entering the military. Program completers will be those students who completed all requirements of the instructional program and received a diploma.

Standard:

A satisfactory standard of performance for individual programs will be a placement rate of 90 percent of secondary vocational-technical education completers. If a placement rate of less than 90 percent is evidenced, then an increase of at least five percentage points in the placement rate of the previous year will be considered as having met the standard.

APPENDIX B

ARTICULATED CURRICULUM

HEALTH CLUSTER

9th Year	10th Year	11th Year	12th Year	13th and 14th Years
Applied Math I	Applied Math II	Algebra II	Geometry	**Specific Program Options** • Medical Assisting Technology • Medical Laboratory Technology • Nursing • Radiation Technology • Health Information Technology
Applied Communications I	Applied Communications II	Applied Communications III	Applied Communications IV	
Applied Bio/Chem I	Applied Biology II	Principles of Technology	Science Electives	
World History		American History	Social Science	
Technology Electives (2)	Technology Electives (2)	Technology Electives (3)	Technology Electives (3)	

BUSINESS CLUSTER

9th Year	10th Year	11th Year	12th Year	13th and 14th Years
Applied Math I	Applied Math II	Algebra II	Math Elective (College/Honors)	**Specific Program Options** • Office Administration • Data Processing • Marketing and Management • Hotel, Restaurant, and Institutional Management
Applied Communications I	Applied Communications II	Applied Communications III	Applied Communications IV	
Science Technology and Society	Applied Bio/Chem I	Principles of Technology I	Science Electives	
World History		American History	Science Elective	
Technology Electives (2)	Technology Electives (2)	Technology Electives (3)	Technology Electives (3)	

ENGINEERING TECHNOLOGY CLUSTER

9th Year	10th Year	11th Year	12th Year	13th and 14th Years
Applied Math I	Applied Math II	Geometry or Algebra II	Trigonometry/ Calculus	**Specific Program Options** • CAD Technology • Architectural and Construction Technology • Environmental Technology • Biomedical Technology • Electronics Technology
Applied Communications I	Applied Communications II	Applied Communications III	Applied Communications IV	
Applied Bio/Chem I	Principles of Technology I	Principles of Technology II	Science Elective (College/Honors)	
World History		American History	Social Science	
Technology Electives (2)	Technology Electives (2)	Technology Electives (3)	Technology Electives (3)	

APPENDIX C

CROSS WALK

GOALS		PLANNING CONCEPTS
Short Term	Long Term	
II.3.a, b, c	II.4.a Organizational Framework	IV.1 Business and Industry Collaboration
II.3.d, e, f, g, h	II.4.b Curriculum Framework	IV.2 Articulated Curriculum IV.3 Curriculum Development
II.3.k, l	II.4.c Inservice Training	IV.6 Staff Development
II.3.m, n, o	II.4.d Promotional Campaign	IV.7 Marketing Plan
II.3.p, q, r, s	II.4.e Support Framework	IV.4 Career Guidance and Counseling IV.5 At-Risk Students

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Lincoln High School
Swenson Skills Center
Community College of Philadelphia

Planning Component: Organization

Tech Prep in Pennsylvania is industry-driven. It is necessary for the curriculum competencies to be designed and validated by industry-specific representatives for each cluster/program area.

Objective Or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To secure commitment between local and state governments, business, industry, labor, CCP, and the School District of Philadelphia.	1993 - ongoing	Superintendent, School District of Philadelphia President, CCP Tech Prep Executive Leadership Committee Tech Prep Steering Committee	As needed.	As needed.	A viable cooperative agreement between business, industry, labor, and education	Involvement of at least two members from each organization plus the occupational cluster areas
To coordinate the selection of and to orient business, industry, and labor partners.	1993 - ongoing	Tech Prep Executive Leadership Committee Tech Prep Steering Committee Tech Prep Coordinator	As needed.	Philadelphia High School Academies, Inc.	Involvement of business, industry, labor, education, and occupational cluster representatives A concrete understanding of the Tech Prep concept Establish criteria for selection of business, industry, and labor partners	Involvement of at least two members from each organization plus occupational cluster areas

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Lincoln High School
Swenson Skills Center
Community College of Philadelphia

Planning Component: Articulated Curriculum

High schools will be encouraged to prepare Requests for Proposals (RFPs) for inclusion into the Philadelphia Tech Prep Partnership. All RFPs will be reviewed annually and five additional schools will be selected each year as new members of the Philadelphia Tech Prep Partnership.

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To ensure that 100% of schools which respond to the RFP are considered for articulation.	June 1993 - 1997	Tech Prep Steering Committee Tech Prep Coordinator Participating high school coordinators and department heads	As needed.	As needed.	All RFPs which meet Tech Prep criteria will be considered for the Philadelphia Tech Prep Partnership	An annual review of RFPs by Philadelphia Tech Prep selection committee
To ensure a minimum of 15 agreements of intent to develop Tech Prep Programs.	1993 - 1997	High school faculties and administrators Department heads and coordinators Tech Prep Steering Committee	As needed.	Craft committees	Larger numbers of schools following Tech Prep model	A review of RFPs submitted
To ensure that a minimum of five written articulation agreements be completed each year.	1993 - 1997	High school and community college faculties and administrators Department heads, trade coordinators, and charter coordinators Tech Prep Steering Committee	Business and industry representatives, as needed.	Vocational-Technical Education Consortium of States (V-TECS) Craft committees	To add five additional Tech Prep sites that will be accepted annually	A review by Philadelphia Tech Prep Partnership

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Lincoln High School
Swenson Skills Center
Community College of Philadelphia

Planning Component: Articulated Curriculum (continued)

High schools will be encouraged to prepare Requests for Proposals (RFPs) for inclusion into the Philadelphia Tech Prep Partnership. All RFPs will be reviewed annually and five additional schools will be selected each year as new members of the Philadelphia Tech Prep Partnership.

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To establish curricula that are both horizontally and vertically integrated.	August 1993 - ongoing	Secondary high school vocational and academic staff Postsecondary vocational and academic staff Business, industry, and labor partners Personnel specific to program areas	Chamber of Commerce Manufacturers associations	V-TECS Developing a Curriculum (DACUM) processes	The establishment of curricula which integrates traditional academic subjects with technical, hands-on experience.	Annual reviews of curricula to be done by Students Faculty Administrators Curriculum specialists Business, industry, and labor representatives

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Lincoln High School
Swenson Skills Center
Community College of Philadelphia

Planning Component: Curriculum Development

High schools submitting RFPs must initiate the development of an integrated curriculum. The joint curriculum committee of the Philadelphia Tech Prep Partnership will assist the high schools and the Community College of Philadelphia with curriculum innovations. Finally, work-site learning experiences are to be established by the Philadelphia Tech Prep staff and the high school unit teams.

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To execute written agreements of intent to develop Tech Prep Programs with all of the high schools that respond to the RFPs.	April 1993 - ongoing	Superintendent, School District of Philadelphia President, CCP	Tech Prep Steering Committee Tech Prep Coordinator	As needed.	To formalize partnership agreements.	Determining the number of signed agreements
To establish a schedule (three years) for the development of articulated courses and curricula.	August 1993 - December 1993	Tech Prep Coordinator Tech Prep Curriculum Development Committee	As needed.	As needed.	To establish a timeframe for development and cooperation.	Setting a three-year target Determining the number of articulations per year and at the end of the targeted time frame
To select schools which will develop articulated programs in the first year of the Tech Prep program.	March 1993 - April 1993	Steering Committee Tech Prep Site Selection Committee	As needed.	As needed.	To get started with students enrolled in particular program.	Tabulating the number of articulated programs and the number of students enrolled

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Lincoln High School
Swenson Skills Center
Community College of Philadelphia

Planning Component: Curriculum Development (continued)

High schools submitting RFPs must initiate the development of an integrated curriculum. The joint curriculum committee of the Philadelphia Tech Prep Partnership will assist the high schools and the Community College of Philadelphia with curriculum innovations. Finally, work-site learning experiences are to be established by the Philadelphia Tech Prep staff and the high school unit teams.

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To conduct an articulation process that includes the following components: (1) articulation of all matchable public school and CCP courses amenable to advanced placement agreements where provided for by individual departments; (2) curriculum review of math, science, communications, and vocational education to target changes and/or new courses needed; (3) staff training to upgrade skills; and (4) development of Tech Prep courses of study to parallel college prep courses.	September 1992 - ongoing	Tech Prep Steering Committee Tech Prep Curriculum Development Committee Tech Prep Coordinator High school and community college faculty	As needed.	Business and industry Community organizations Media	To provide students with tools for coping with the demands of the 21st Century.	Producing an annual report and self-evaluation by a representative inclusive committee

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Lincoln High School
Swenson Skills Center
Community College of Philadelphia

Planning Component: Curriculum Development (continued)

High schools submitting RFPs must initiate the development of an integrated curriculum. The joint curriculum committee of the Philadelphia Tech Prep Partnership will assist the high schools and the Community College of Philadelphia with curriculum innovations. Finally, work-site learning experiences are to be established by the Philadelphia Tech Prep staff and the high school unit teams.

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To establish a work-site learning component for each program area.	August 1994 - December 1994	Steering Committee Business, Industry, and Labor Committee Tech Prep Career Development Specialist	Business/industry/ labor groups Tech Prep Coordinator	Jobs for the Future Jobs Training Partnership Act (JTPA)	The establishment of employer sponsored work-site learning locations for those students who might best benefit from this option The integration of academic and work-site education	Determining the number of employer-sponsored work-site learning locations established during each of the next three years

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Lincoln High School
Swenson Skills Center
Community College of Philadelphia

Planning Component: Staff Development

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To assess training needs of administrators, faculty, counselors, and business, labor, and industry partners.	July 1992 - ongoing	Tech Prep Steering Committee Tech Prep Coordinator	Tech Prep Curriculum Development Committee, as needed.	NCRVE workshops to provide training to curriculum development committee and staff Professional development centers of Temple University, Penn State, and Indiana University of Pennsylvania	Identification of training needs	Interviews Surveys Informal staff discussions

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Lincoln High School
Swenson Skills Center
Community College of Philadelphia

Planning Component: Staff Development (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To plan and conduct inservice training workshops and seminars that address the identified needs as well as the following topics: (1) increased understanding of Tech Prep (2) understanding of competency-based education (3) collaboration and interdisciplinary curriculum modification (4) effective delivery of Tech Prep curricula in the classroom (5) counseling and support activities, and (6) leadership in educational administration	July 1992 - ongoing	Professional Development Committee Tech Prep Coordinator Tech Prep Steering Committee	Business, industry, and labor partners Professional development centers of Temple University, Penn State, and Indiana University of Pennsylvania	Professional trainers Substitute/released time Instructional materials	Development and implementation of integrated curriculum Understanding and application of competency-based education	Documenting attendance lists and agendas from workshops and seminars Developing a handbook to be updated throughout the school year which will include (1) an overview of Tech Prep (2) a description of the Tech Prep/ Associate Degree program (3) the roles and responsibilities of administrators, teachers, counselors, business and industry partners, and so on (4) advising techniques (5) articulation examples (6) other topics which are important to the success of the project (7) a newsletter for staff

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Lincoln High School
Swenson Skills Center
Community College of Philadelphia

Planning Component: Marketing

In order for our Tech Prep Partnership to be successful, it is important that we develop and implement a promotional campaign that will provide information to students, parents, high school counselors, teachers, and employers regarding the preparation needed to enter community college programs. In addition, information on the career options available to high school and community college Tech Prep students will be widely disseminated throughout the Philadelphia metropolitan area.

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To develop marketing materials for public information activities about Tech Prep to include (1) announcements, (2) press releases, (3) news items, (4) status reports, (5) promotional videos, and (6) information brochures.	September 1993 - ongoing	Tech Prep Steering Committee/Marketing Planning Committee Tech Prep Coordinator	Counselors Tech Prep Career Development Specialist Business, labor, and industry partners	Public Relations Department of CCP and Office of Communications, School District of Philadelphia Local business, labor, and industry partners Various local and regional electronic and print media	To develop and implement a promotional campaign which will provide information to students, parents, high school counselors, teachers, and employers regarding the preparation needed for community college programs and the careers available to high school and community college Tech Prep students.	Marketing materials developed
To disseminate marketing materials to students, parents, college staff, high school staff, community representatives, and employers.	September 1993 - ongoing	Tech Prep Steering Committee/Marketing Planning Committee Tech Prep Coordinator Participating high schools	Counselors Community-based organizations Business, labor, and industry partners	Assistance in developing a variety of marketing materials	To increase the Tech Prep knowledge level of students, parents, and entire Philadelphia community.	Statistics on high school program enrollments Statistics on CCP's first-year student enrollment and program selection

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Lincoln High School
Swenson Skills Center
Community College of Philadelphia

Planning Component: Marketing (continued)

In order for our Tech Prep Partnership to be successful, it is important that we develop and implement a promotional campaign that will provide information to students, parents, high school counselors, teachers, and employers regarding the preparation needed to enter community college programs. In addition, information on the career options available to high school and community college Tech Prep students will be widely disseminated throughout the Philadelphia metropolitan area.

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To plan and coordinate Tech Prep recruitment activities to include open houses, career days, and other special events.	September 1993 - ongoing	Tech Prep Steering Committee/Marketing Planning Committee Tech Prep Coordinator Tech Prep Career Development Specialist Counselors Participating schools	Community-based organizations Business, labor, and industry partners	As needed.	To increase knowledge of Tech Prep throughout the community.	Successful open houses, career days, and other special events
To establish and implement a procedure for the enrollment of students into Tech Prep programs.	September 1993 - February 1994	Career counseling and job placement committee High School Administrators Tech Prep Coordinator	Tech Prep Curriculum Committee Business, industry, and labor partners	Assessment and evaluation tools Application process	Contract for student enrollment including parental permission Equal access for all students Enrollment of students from all levels	100% of eighth-grade students will receive application information

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Lincoln High School
Swenson Skills Center
Community College of Philadelphia

Planning Component: Career Guidance and Counseling

The Tech Prep Partnership will provide a support services framework which will ensure that each Tech Prep student has an individualized career plan which contains a career goal and related vocational/academic preparation.

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To design, develop, and implement student Individual Career Plans (ICPs) based on National Occupational and Information Coordinating Committee (NOICC) standards, where feasible, for each Tech Prep student at the secondary level. ICPs are to be entered into a database that is mutually accessible to secondary and postsecondary counselors and career development specialists.	September 1993 - ongoing	Counselors Career Development Specialists Teachers of Fast Track Program	None	Folders NOICC Standards Clerical assistance Computer networking capability	To ensure student awareness of their career goals and their progress towards achieving them.	Annual review of ICP process by students and career development specialists

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Lincoln High School
Swenson Skills Center
Community College of Philadelphia

Planning Component: Career Guidance and Counseling (continued)

The Tech Prep Partnership will provide a support services framework which will ensure that each Tech Prep student has an individualized career plan which contains a career goal and related vocational/academic preparation.

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To prepare career awareness and exploration programs for Tech Prep Cluster Areas with each student maintaining an individual career portfolio.	September 1993 - ongoing	Lincoln/Swenson and CCP Career Development Specialists and Counselors	As needed.	Computers to maintain students' data files Computer software CCP Career Development Center Updated books on career information Interests inventories, *Occupational Outlook Handbook, Discover, Dictionary of Occupational Titles* (DOT) and Vocational Instructional Computer Systems (VICS)	To ensure that students have sufficient information on career choices supported by well-rounded portfolios.	The annual review of 100% of each Tech Prep student's portfolio
To develop comprehensive student/parent career guidance materials (videos and handbooks).	September 1993/1994 - ongoing	Lincoln/Swenson and CCP Career Development Specialists, Counselors, Cluster Coordinators/ Department Heads	Business, industry, and labor partners	Funding for materials and computers	To ensure that students and parents are aware of available resources to plan career goals.	Career Guidance Center at CCP and Guidance Counselors at Lincoln/Swenson will have materials available to 100% of Tech Prep students.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Lincoln High School
Swenson Skills Center
Community College of Philadelphia

Planning Component: Career Guidance and Counseling (continued)

The Tech Prep Partnership will provide a support services framework which will ensure that each Tech Prep student has an individualized career plan which contains a career goal and related vocational/academic preparation.

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To develop and implement a mentoring program with local employers and CCP alumni.	September 1993 to June 1995	Lincoln/Swenson and CCP Career Development Specialists and Counselors	Business, industry, and labor partners Lincoln/Swenson/ CCP alumni	A list of participating companies A mentoring program specialist	To ensure that students are exposed to the world of work, gaining first hand experience and understanding of what is expected of them as employees.	Student evaluation will include an essay on their experiences in the world of work. Participating companies will be surveyed to gain insight on students. Student and company mentor feedback will be compiled and reviewed.
To develop comprehensive self-enrichment programs with emphasis on identifying abilities, strengths, and weaknesses resulting in lifelong learning, self-enrichment, and cultural awareness.	1993 - ongoing	Counselors and teachers Community cultural representatives	As needed.	School District of Philadelphia and CCP Computer Networks Clerical assistance	Student awareness of benefits of education to achieve career goals Optimal use of leisure time	Percentage of students who will graduate from high school will increase by 25%. Percentage of students who will pursue education beyond high school will increase by 25%.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Lincoln High School
Swenson Skills Center
Community College of Philadelphia

Planning Component: Career Guidance and Counseling (continued)

The Tech Prep Partnership will provide a support services framework which will ensure that each Tech Prep student has an individualized career plan which contains a career goal and related vocational/academic preparation.

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To develop a consortium between secondary and postsecondary Tech Prep Counselors.	1993/1994 - ongoing	All counselors at Lincoln/Swenson and CCP who are involved in Tech Prep Program	Business, industry, and labor partners	Released time for regularly scheduled periodic meetings Standard meeting dates, where counselors and specialists will share, plan, and develop career and counseling materials such as interest inventories and students' individual career plans	All Tech Prep Counselors along with career development specialists will be of one accord and keep abreast of current counseling/career issues.	100% of counselors surveyed will feel the annual meetings are beneficial.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Lincoln High School
Swenson Skills Center
Community College of Philadelphia

Planning Component: At-Risk and Special Populations

The terms "At-Risk/Special Needs Populations" are defined by the five individual areas: the educationally disadvantaged, the economically disadvantaged, the limited-English proficient, the disabled, and those who are participating in programs designed to eliminate gender bias.

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To ensure that individuals who are members of special populations will be provided with equal access to the full range of vocational education programs/services, including Tech Prep. They should have access to specific courses of study and comprehensive career guidance and counseling services, and not be discriminated against on the basis of their status as members of special populations.	1993 - ongoing	Counselors, Career Development Specialist, Gender Equity Coordinator Special Populations Coordinators	Career Development Specialists Community Agencies	Application for admissions and recruiters Assessment and evaluation tools High school records	Equal access to Tech Prep Enrollments of At-Risk/Special Needs Populations via Tech Prep	100% of all At-Risk/ Special Needs Populations who meet Tech Prep admission requirements will be admitted.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Lincoln High School
Swenson Skills Center
Community College of Philadelphia

Planning Component: At-Risk and Special Populations (continued)

The terms "At-Risk/Special Needs Populations" are defined by the five individual areas: (1) the educationally disadvantaged, (2) the economically disadvantaged, (3) the limited-English proficient, (4) the disabled, and (5) those who are participating in programs designed to eliminate gender bias.

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To ensure that vocational education programs, services, and activities provided in the Tech Prep Programs for individuals with disabilities be provided in the least restrictive environment in accordance with Section 612(5)(B) of the Education of the Handicapped Act and, whenever appropriate, be included as a component of the individualized education program as developed.	September 1993 and ongoing	Administrators, Counselors, Career Development Specialists Special Programs Coordinators	Governmental and community agencies (as needed)	State, federal, and nonprofit clearinghouses	The At-Risk population will have equal access to all services.	100% of At-Risk students will be placed in the least restrictive Tech Prep programs.
To ensure that the provision of vocational education programs and services through Tech Prep programs be monitored to ensure that disadvantaged students and students of limited-English proficiency have access to such education and services in the most integrated setting possible.	1993 and ongoing	Administrators Career Development Specialists Counselors Special Programs Coordinators	Community Agencies	Computers and appropriate software packages Clerical assistance Special academic support programs	Optimal placement of At-Risk students	Percentage of At-Risk students graduating from secondary programs and going on to postsecondary institutions or employment will increase by 25%.

282

283

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Lincoln High School
Swenson Skills Center
Community College of Philadelphia

Planning Component: At-Risk and Special Populations (continued)

The terms "At-Risk/Special Needs Populations" are defined by the five individual areas: (1) the educationally disadvantaged, (2) the economically disadvantaged, (3) the limited-English proficient, (4) the disabled, and (5) those who are participating in programs designed to eliminate gender bias.

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To ensure that ongoing procedures, including an expedited appeals procedure, will enable concerned parents, students, teachers, and area residents to participate directly in local decisions that influence the character of the Tech Prep program.	1993-1994 ongoing	Director of Tech Prep Programs at Lincoln/ Swenson and CCP Counselors	Community Representatives Parents Students Teachers	Review of approved, established appeal procedure plans	To ensure that parents, teachers, students, and community representatives will be actively involved in the development of Tech Prep programs.	Percentage of all persons surveyed indicating satisfaction with involvement in Tech Prep decision-making procedures
To ensure that individual and small group tutoring to increase academic performance be provided to At-Risk/Special Needs Populations to be continued through the postsecondary level as needed.	1993-1994 ongoing	Administrators Career Development Specialists Program Coordinators Tutors	As needed.	Tutoring personnel Computers and tutorial software packages to aid tutoring initiative Computers to maintain records	To increase academic skills of At-Risk students in Tech Prep.	Percentage of At-Risk students in Tech Prep to complete secondary and go on to postsecondary will increase by 25%.

CENTRAL HIGH SCHOOL
SHELTON STATE COMMUNITY COLLEGE
TUSCALOOSA, ALABAMA

Planning Document Developed at the NCRVE 1993 National Institute:
"Establishing Integrated Tech Prep Programs in Urban Schools"*
July 14-23, 1993

INTRODUCTION

In the summer of 1993, at the Berkeley Marina Marriott Hotel in Berkeley, California, representatives from the Tuscaloosa City School System and Shelton State Community College attended the National Center for Research in Vocational Education's Institute on "Establishing Integrated Tech Prep Programs in Urban Schools."

The representatives developed the work that follows at the Institute. Because the establishment of a Tech Prep program is a systemic process, we assume that the work will be, at best, a seminal guide for the establishment of an intense dialogue with representatives from all portions of the community.

We present this document as an "instigator" of this dialogue, realizing that this plan may take a new direction as it is shaped by our community.

We present this plan with the idea that, like a child, its potential can best be realized with the influence and support of all of our educational and community family.

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* This is a working paper. It has not been reviewed by either the NCRVE or the educational institutions/agencies where the authors are employed. Therefore, this paper represents the views of the authors only.

DESCRIPTION OF THE INTEGRATED TECH PREP TEAM

Tuscaloosa City Schools

Administration

- Pat Edwards, Vocational Director

Central High School - East Campus

- Carolyn Davis, Mathematics Instructor, Chairperson of Mathematics Department
- Pat Foster, Business Education CoOp Coordinator
- Jeanna Lockridge, Marketing CoOp Coordinator
- Armond Thomas, Vocational Counselor

Central High School - West Campus

- Albert Wilson, Principal
- Loretta Lewis, Technical Algebra Instructor

Eastwood Middle School

- Martha Logan, Special Education Instructor

Shelton State Community College

- James Jolly, English and Speech Communication Instructor, Chairperson of the Humanities Division
- James "Sonny" Logan, Air Conditioning/Refrigeration Technology Instructor
- Samuel Merriweather, Career Center Coordinator
- Francis Viselli, Assistant Director of Technical Services, Tech Prep Coordinator

State Department of Education

- James Kendrick, State Department of Education Representative, Tech Prep Liaison

Other Key Players

Tuscaloosa City Schools

- Board of Education
- Thomas Ingram, Superintendent
- Peggy Collins, Director of Instruction
- Richard Rhone, Principal, Central High - East Campus
- Bob Roberts, Administrator, Tuscaloosa Center for Technology
- Parent-Teacher Associations

Shelton State Community College

- Thomas Umphrey, President, Shelton State Community College
- All Deans

Tuscaloosa City Schools/Shelton State Community College

- All Counselors
- Department Chairpersons
- All Faculties—Vocational/Technical and Academic
- Business, Government, and Industry Representatives
- Parents
- Students
- Support Services Staff

Alabama State Board of Education

Business, Government, and Industry Representatives

Media

DESCRIPTION OF CURRENT PROGRAMS

Central High School has two campuses, West (grades 9 and 10) and East (grades 11 and 12), and a total of 2,500 students. The student population is approximately 63% African-American, 35% Caucasian, and 2% Asian. Approximately 40% of the students receive a free or reduced-price lunch. Vocational/technical education is provided on both campuses and at a separate area vocational center, Tuscaloosa Center for Technology. At the present time, Shelton State Community College has three campuses, two primarily technical and one primarily academic. The college has a fast-developing long distance learning center with campuses 35 miles east and 30 miles south. It also has an interactive multimedia network to supply computer and program needs to these campuses and to business/industry via long distance learning.

Central High School and Shelton State Community College are members of the West Alabama Tech Prep Consortium, which includes Tuscaloosa City Schools plus six other school systems and Shelton State as the postsecondary institution. Planning for this Consortium program was started in the 1991-1992 school year, and continued planning and limited implementation have been conducted during the 1992-1993 school year. Currently, the Consortium as a whole and the members as individual entities are continuing to plan and beginning to implement the program.

The current Tech Prep plan focuses on three career options: (1) Health/Human Services, (2) Business, and (3) Engineering/Industrial. A 4+2+2 plan is envisioned.

Since beginning the Tech Prep program in 1992, several new courses have been added to the Course of Study for Central High School. Currently approximately 25% of eighth graders take a survey course, Explorations in Technology, which introduces them to career options and/or vocational/technical courses which are, or will be, available through Central High School. A second Explorations in Technology course was started in the 1993-1994 school year for ninth and tenth graders. Other new courses added are Technical Math, Technical Algebra, Physics Technology, Healthcare Science and Technology, and Applied Biology/Chemistry. An Applied Communications course will be considered for the 1994-1995 school year.

Central High School is affiliated with the *High Schools that Work* program sponsored by the Southern Regional Education Board (SREB). This *High Schools that Work* program focuses on raising the expectations for vocational students. Both campuses of Central High School have begun working on a plan of action to meet the goals of the program. It is the school system's plan to conduct the program at Central High School for all students—vocational and academic. The goals of the *High Schools that Work* program will be meshed with the goals of the Tech Prep program to allow a common focus.

A Tech Prep Coordinator has been employed at Shelton State Community College. This coordinator acts as the Shelton State representative to the West Alabama Tech Prep Consortium to disseminate information to the deans of the community college, to coordinate the Tech Prep activities related to the community college, and to serve the Consortium as leader of the Marketing Committee and member of the Curriculum Development Committee.

TECH PREP PHILOSOPHY

It is the philosophy of the Tuscaloosa City Schools and Shelton State Community College that all students can and will learn and that lifelong learning is an integral part of human existence. Instruction must begin at the student's present ability and performance level and challenge him or her to the greatest extent possible. The program of study offered by these two institutions will be designed to allow students to develop intellectually, emotionally, physically, and socially in a variety of patterns. Therefore, the instructional program will be developed to accommodate the needs and interests of each student. Tech Prep is the educational vehicle that allows each student equal access to postsecondary education and/or to the world of work.

DEFINITION OF TERMS

Our Tech Prep planning team defines some important terms as follows:

Advanced Credit

The awarding of college credit for coursework completed on the secondary level. These college hours are recorded on the transcript and will count toward completion of requirements for a certificate or an associate degree in a technical field.

Advanced Placement

This program allows a student who has shown proficiency in the competencies taught in a particular course to "skip" or CLEP the course. The hours for this particular course will not count toward degree requirements. The student must take another course, preferably a higher level one, that she or he may have had difficulty including without advanced placement.

Articulation

The movement of a student from one program to another without duplication of training or cost to the student.

CLEP Exam

College Level Entrance Placement Exam.

JOBS

Job Opportunities and Basic Skills.

JTPA

Job Training Partnership Act.

Postsecondary

Any education or training beyond high school, including but not limited to two-year, four-year, military, and apprenticeship programs.

SDE

State Department of Education (Alabama).

SOICC

State Occupational Information Coordinating Committee.

SREB

Southern Regional Education Board.

Tech Prep

A program that provides a structured, sequenced course of study, including technical and academic courses, leading to preparation for postsecondary education and/or work.

Tech Prep Student

An individual who participates in career guidance activities and plans to pursue a four-credit vocational/technical sequence in combination with a strong academic foundation.

STUDENT OUTCOMES

In conjunction with the SREB *High Schools that Work Program*, and as result of the Tech Prep program, students will be able to

- appropriately allocate resources, including time, money, materials and facilities, and human resources.
- use problem-solving, critical thinking, and decision-making skills to acquire and evaluate information, organize and maintain information, interpret and communicate, understand quality process development, and use inductive and deductive reasoning.
- select, apply, and maintain appropriate technology and "troubleshoot."
- communicate using technical writing and reporting, lab reports, memos and letters, verbal skills, listening and questioning skills, technical materials, job-seeking skills, group communication skills, and nonverbal skills.
- demonstrate knowledge of public law and environmental consciousness.
- understand and appreciate the fine arts and humanities.
- understand and use physics principles as they relate to a chosen career option.
- understand and use appropriate computer software and technology.
- make the proper selection of tools.
- understand the physical properties of materials in order to appropriately select and apply them.
- understand and use interpersonal and group processes—acting as a team participant, teaching others, serving customers/clients, negotiating, receiving and following instructions, using leadership skills, and appreciating lifestyle and cultural diversity.
- understand, monitor, and correct performances; improve and design systems; and understand and use quality control systems.
- demonstrate personal attributes, including quality consciousness, work ethics, motivation, the ability to think and act independently, responsibility to community, and dedication to lifelong learning.
- demonstrate computation skills, use of applied statistics and graphs, and use of and interpretation of spatial relationships, appropriate use of calculators, manipulation of formulas, applications of mathematical principles, measurement with industrial devices, and recognition of reasonable solutions.

PROGRAM GOALS

Program Goals

Based on the *High Schools That Work* Program, Southern Regional Education Board

Goals (Short-Term, 1–3 Years)	Statement	Measure
1. Establish higher expectations for students in both vocational and academic classes.	• Recommend the elimination of basic classes. • Increase reading, writing, and communications requirements in all courses.	• Increased enrollment in grade level or above classes • Analysis of lesson plans and evaluation of semester tests
2. Develop integrated courses that will use strategies including but not limited to project-based learning, block schedules, team teaching, portfolio assessment, and work-based learning.	• Expand emphasis on academic concepts in vocational/technical classes. • Expand emphasis on applied concepts in academic classes. • Explore and select for development other strategies to foster integration of vocational/technical and academic education.	• Increased integration activities • Documentation of staff development activities
3. Develop a sequenced curriculum for K–14 to meet business/industry workforce needs that provides four career options, each with a challenging program of study of fully integrated vocational/technical and academic courses that provide skills for lifelong learning.	• Define four career options: (1) business, (2) health/human services, (3) engineering/ industrial, and (4) arts/ communications. • Develop structured, sequenced program of study in each of the four areas.	• Developed curriculum plan • Documented options
4. Encourage vocational and academic teachers to integrate vocational and academic curriculum and instruction by providing them with staff development, materials and time to work together.	• Provide five professional days for Tech Prep planning. • Explore and develop other options for encouraging integration of vocational/ technical and academic education. • Provide needed materials/supplies for planning and integration work.	• Analysis of professional time provided and teacher evaluations • Records of materials collected
5. Revise the instructional process so that the student is a worker and is actively engaged in the learning process.	• Provide staff development activities in varied instructional techniques.	• Analysis of staff development activities

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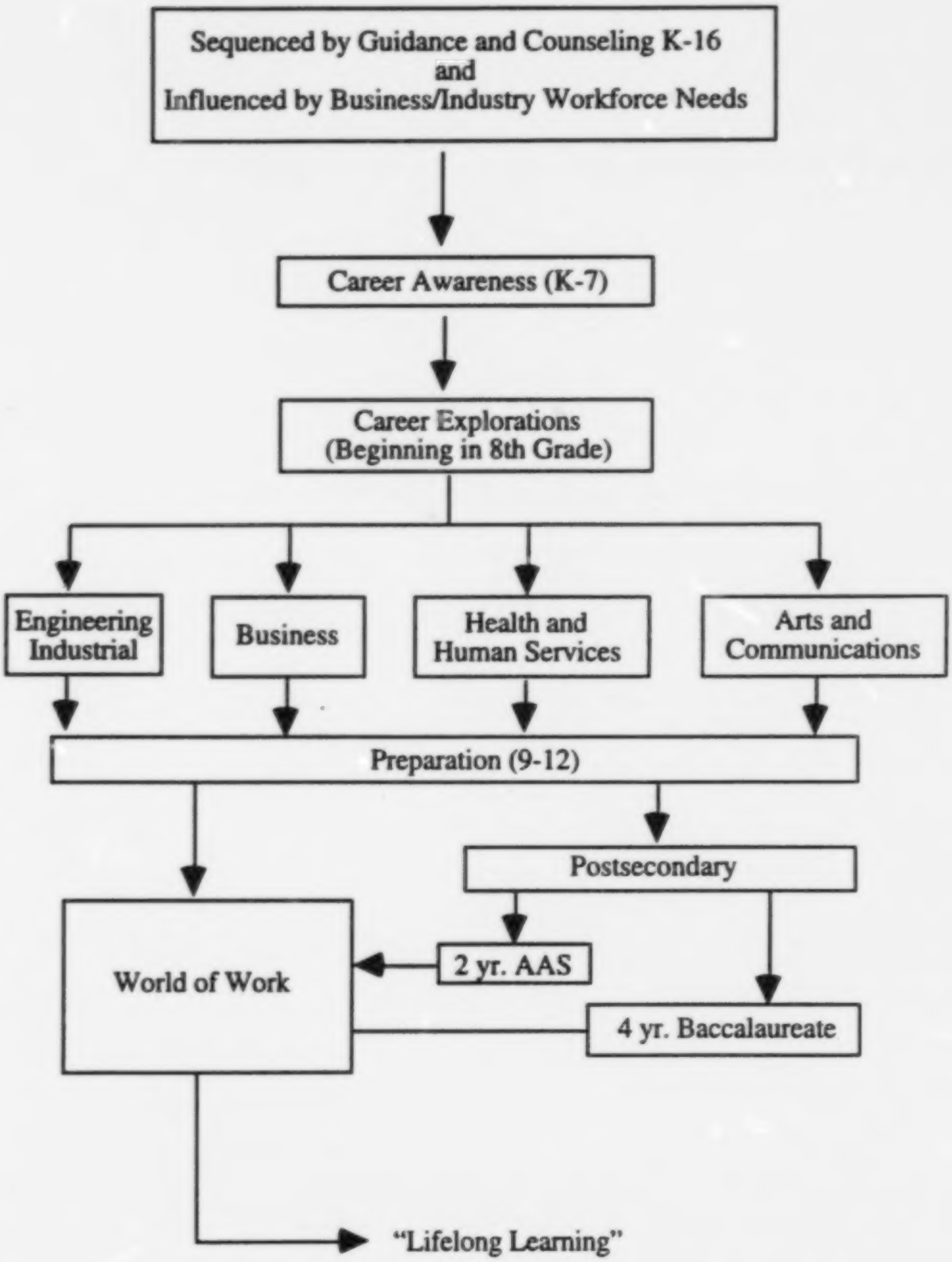
Program Goals (continued)

Goals (Short-Term, 1–3 Years)	Statement	Measure
6. Develop a comprehensive guidance and counseling program (K–14), including a required career exploration course.	• Work with all counselors in development of a comprehensive plan. • Develop and implement a required career exploration course available beginning in the eighth grade.	• Comprehensive guidance plan documentation • Course outline and implementation of career exploration course
7. Provide guidance and counseling services to help students see the connection between what they learn in school and their goals beyond high school; involve parents in the process of planning and annually updating a high school program of study.	• Provide minimum of two career guidance activities for students per year. • Document at least one direct contact with parents annually. • Provide at least one activity for parents devoted to planning a program of study.	• Analysis of guidance activities • Analysis of documentation records • Documentation of meetings
8. Complete articulation agreements in all vocational/ technical areas and in academic areas of English, math, and science.	• Review and revise articulation agreements in progress. • Develop articulation agreement in arts/communications areas by providing joint meetings for secondary and postsecondary teachers to work together.	• Documentation of meetings to review and revise • Articulation agreement for arts/communications area
9. Provide extra help to enable students to successfully complete a program of study that includes high-level academic content.	• Continue with existing after-school tutorial services, remediation lab at Tuscaloosa Center for Technology, and Success Center services for extra help. • Expand extra help possibilities. • Encourage community organization and business/ industry to provide tutoring as a service project.	• Utilization of services • List of possible services to be developed • Copies of letters to business/industry
10. Expand cooperative planning periods and staff development activities at both secondary and postsecondary levels.	• Provide at least two combined staff development activities per year for secondary/ postsecondary faculties. • Plan for and provide cooperative planning periods for faculties working with integration of vocational/ technical and academic education	• Documentation of attendance at activities • Teacher daily schedules showing cooperative planning periods

STRUCTURE OF THE TECH PREP PROGRAM


Sequenced by Guidance and Counseling K-16
and
Influenced by Business/Industry Workforce Needs
Career Awareness (K-7)
Career Explorations (Beginning in 8th Grade)
Engineering Industrial
Business
Health and Human Services
Arts and Communications
Preparation (9-12)
Postsecondary
World of Work
2 yr. AAS
4 yr. Baccalaureate
"Lifelong Learning"

Long-Term Goals

- Decrease the dropout rate.
- Increase the number of students completing a sequenced, structured program of study.
- Increase the number of students entering and completing postsecondary education and/or entering the workplace appropriately prepared.

ARTICULATION AGREEMENTS

Articulation efforts in the West Alabama Tech Prep Consortium began in January, 1992, in the areas of Business Education and Health Occupations. Agreements have been reached in both of these areas; however, the Health Occupations articulation agreement has not been finalized or approved by the State Board of Nursing. The health area deals with a State Board, which somewhat complicates the process.

The articulation of those vocational/technical programs falling under the "Engineering/Industrial" option of Tech Prep began August 11, 1992, with a meeting of secondary and postsecondary educators. A general session was held in the morning at Central East and smaller sessions met in the vocational departments of the postsecondary schools in the afternoon. The general session included Victor Poole from the State Board of Education, Johnnie Aycock from the Tuscaloosa Chamber of Commerce, and Pat Edwards, the Vocational Education Director for Tuscaloosa City Schools.

Articulation began in the individual vocational/technical areas on October 12, 1992. Three meetings were scheduled with each of the areas. The first two meetings were daylong sessions and the third was a luncheon meeting at which representatives from business and industry were invited for input on curriculum modifications. Articulation agreements were developed to include the following:

1. Advanced Credit will be awarded to students who meet the following criteria:
    - completion of a Tech Prep course of study;
    - recommendation by program instructor for advanced credit; and

- successful completion of a competency-based proficiency exam jointly developed by both secondary and postsecondary instructors.

2. Advanced Credit will be awarded in

   - Air Conditioning and Refrigeration
   - Auto Body
   - Automotive Mechanics
   - Business and Office Administration
   - Cabinet Making
   - Carpentry
   - Child Development
   - Commercial Foods
   - Commercial Sewing
   - Cosmetology
   - Diesel Mechanics
   - Drafting Technology
   - Electricity Technology
   - Electronics
   - Graphic Arts (1993-1994)
   - Lawn/Turf Management (1993-1994)
   - Masonry
   - Nursing
   - Small Engine Repair
   - Tourism (1993-1994)
   - Welding

A student who completes an applied communications course (proposed for 1994-1995) in the eleventh and twelfth grades with grades of "B" or higher and who scores appropriately on the placement test for Vocational-Technical English will receive credit for VTE 101.

Other articulation agreements are currently being developed in Mathematics and Science. Additional articulation agreements will be established as new programs are developed.

Advanced Placement may be granted to students who demonstrate competencies through CLEP and similarly recognized procedures.

PARTNERSHIPS

The Tech Prep programs function best when broad-based partnerships are established. These partnerships must be culturally inclusive and cultivated by the involved educational institutions.

Parents

Parents, who are integral to the partnership process, will help in providing

- marketing skills,
- consultation,
- role models,
- goals for the programs and schools,
- tutorial and mentoring services,
- club assistance and sponsorship,
- volunteer help in school situations, and
- liaisons with local and state political leaders.

Business/Industry

The business/industry component will be involved in providing

- awareness of job opportunities,
- internship opportunities,
- technical expertise and equipment,
- leadership in identifying skills and competencies needed,
- membership on craft and advisory councils and committees,
- adopt-a-school relationships,
- consultants,
- incentives for student achievement, and
- work-based learning.

Service Organizations

Service organizations in West Alabama and the state as a whole (such as the West Alabama Chamber of Commerce and churches) will provide

- information on career opportunities in the Southeastern region,
- financial support,
- tutorial services,
- opportunities for social interaction, and
- scholarships (e.g., from the Stonebuilders Association).

West Alabama Tech Prep Consortium

Members of the West Alabama Tech Prep Consortium will provide

- staff development (workshops),
- consultants,
- peer support,
- articulation agreements, and
- opportunities for the development among consortium members of common course competencies.

Postsecondary Institutions

Postsecondary institutions will provide

- scholarships,
- inservice training,
- consultants,
- career awareness opportunities,
- educational services not otherwise provided by secondary schools, and
- advanced credit and advanced placement.

PROGRAM COMPONENTS

A successful Tech Prep program is made up of numerous components. Included in this portion of the plan are descriptions and objectives for the following components:

- Business/Industry Partnerships
- Guidance and Counseling
- Curriculum Development
- Articulated Curriculum
- Staff Development
- Marketing
- Student Assessment
- Special Populations
- Local Policies
- Budgetary and Fiscal Considerations
- Program Evaluation

BUSINESS/INDUSTRY PARTNERSHIPS

The nurturing of symbiotic relationships between business/industry and education must be a top priority if Tech Prep is to succeed. The following objectives are therefore integral to our Tech Prep program's success:

- Establish and strengthen partnerships with business/industry.
- Develop a comprehensive employment shadowing and mentoring process through a plan that provides teachers time to shadow industry during contractual time.
- Identify, develop, and teach work-based components with business/industry cooperation and input.
- Identify and publicize outcomes and benefits of Tech Prep appropriate to the interests and needs of local business/industry and the community.
- Restructure curriculum to include integration of real-world work practices.

Responsibility for Maintaining Business/Industry Collaboration

It is necessary that responsibility for maintaining business/industry collaboration be shared among all the participants.

Members of the current Tech Prep Business/Industry Committee are as follows:

- John Ahnefelt, Uniroyal-Goodrich
- John Brown, Brown's Machine Shop
- Mary Gibson, West Central Alabama Skills Center
- Victor Hamner, JVC America
- Linda Hardwick, Alabama State Employment Office
- Jim Harrison, III, Harco
- Johnny Kirk, Pittsburg and Midway Coal Co.
- Linda Miller, Phifer Wire
- Rob Pine, Elk Roofing
- Madeline Price, Coral Industries
- Mike White, Tamko Asphalt
- Pat Edwards, Tuscaloosa City Schools
- Ray Glenn, Tuscaloosa County Schools
- Francis Viselli, Shelton State Community College
- Brad Moore, C.A. Fredd Campus, Shelton State Community College

GUIDANCE AND COUNSELING

A comprehensive guidance and counseling program (K-16) is critical to the successful implementation of a Tech Prep program. The following objectives will be addressed:

- Develop a comprehensive guidance program (K-16) which will effectively pace and monitor students.

- Develop strategies to help students define realistic career goals.
- Initiate cross-visitation of counselors among secondary and postsecondary schools.
- Initiate student visitation to technical programs in postsecondary schools.
- Initiate student visitation to technical careers in business and industry.
- Establish twelve-month career counseling centers with additional full-time staff on secondary and postsecondary campuses.
- Utilize existing career resource center materials at Shelton State Community College with secondary level students.
- Develop and implement career-related group guidance activities.
- Utilize state resources, including SOICC.

CURRICULUM DEVELOPMENT

The development of an appropriate curriculum is essential to the success of the Tech Prep program. Vocational/technical teachers, academic teachers, and business/industry representatives will work together to address the following:

- Identify vocational/technical skills, academic skills, and life skills necessary for a successful career.
- Collaborate with vocational/technical teachers, academic teachers, and business/industry representatives to develop curriculum standards.
- Promote development by teachers from each discipline of new courses integrating vocational/technical and academic curricula.
- Provide incentives for teachers to develop curriculum during summer months.
- Establish content-specific curriculum committees with business/industry representation.
- Correlate business/industry input with the currently existing Secondary School Planning Curriculum Subcommittee.
- Establish workshops on curriculum development for faculty.
- Establish peer and off-site observations.

ARTICULATED CURRICULUM

A program of study which structures and sequences existing courses to prevent duplication of training and to promote program continuity will be developed. Curricula will be articulated by sequencing competencies to allow smooth transition from level to level. Academic competencies will be included as enabling objectives. Academic courses are being developed/implemented using applied methodology. Career awareness, exploration, and preparation activities will be included as a part of the comprehensive guidance and counseling program for K-16.

Specific objectives include the following:

- To develop structured and sequenced program of study for four Tech Prep options: (1) Business, (2) Health/Human Services, (3) Engineering/Industrial, and (4) Arts/Communications.
- To complete articulation agreements between secondary and postsecondary in all vocational/technical areas and in academic areas.

STAFF DEVELOPMENT

Staff development is an essential part of a Tech Prep program. Staff development will be provided for all levels of administration, including professional staff, support staff, and business/industry representatives. Opportunities will be provided for the interaction of the faculties on both professional and social levels.

Those involved in staff development will include

- faculties,
- administrators,
- business/industry representatives,
- curriculum coordinators of the consortium institutions,
- the Alabama State Board of Education, and
- the Tuscaloosa City Board of Education.

Topics for staff development will include

- orientation to Tech Prep in the education community,
- applied methodology,
- Tech Prep marketing,
- cooperative learning,
- alternate forms of student assessment such as portfolios,
- team teaching and curriculum integration,
- advising/guidance,
- workforce skills,
- faculty and administration visitations in the workplace, and
- faculty internships in the workplace.

Objectives to be addressed are

- to plan for needed staff development activities,
- to provide incentives for teachers to participate in staff development activities (e.g., released time, stipends), and
- to conduct planned staff development activities.

MARKETING

To facilitate the necessary community acceptance of the Tech Prep program, it is important that business and industry drive the marketing plan.

Internal (in education) audiences of the Tech Prep marketing program will be students, teachers, counselors, support staff, and administrators. External audiences of the marketing program will be business/industry, parents, elected officials, civic organizations, and other community groups.

Vehicles for delivering the marketing program will be a quarterly newsletter, generic and specific Tech Prep brochures, videotapes, a counseling manual, and Career

Week activities. Involvement will also include representative teams from business/industry, summer intern programs for teachers and students, PTA meetings, selected public relations persons from business/industry, faculty meetings, and other staff development activities.

The following are the specific objectives:

- Develop quarterly newsletter and brochures.
- Provide staff development.
- Develop a counseling manual.
- Organize marketing teams representing business/industry.
- Produce videotapes for information and recruitment purposes.
- Establish summer intern programs for educators and students.
- Make presentations at PTA and faculty meetings.
- Organize and conduct Career Week activities.

STUDENT ASSESSMENT

Student assessment is a necessary component of Tech Prep. Efforts to measure student progress in a chosen career cluster will be assessed as follows:

Measures

- completion of the program
- counselor-developed assessment form
- personal interviews
- follow-up assessment (one year later)
- employer report (formal and informal)
- informal feedback from former students

- current teacher report
- examination of standardized test results
- training plan inventory
- successful completion of applicable licenser exams
- observation by appropriate teachers, counselors, and employers
- academic gains
- portfolios

In general, learner outcomes to be measured will be developed by business/industry and educators. Results of assessment will be used for program improvement and student performance improvement.

Specific objectives to be addressed will be

- to determine potential measures for assessment;
- to develop student portfolio measure;
- to provide staff development on student assessment; and
- to use results of student assessment:
    1. To evaluate and modify existing programs.
    2. To measure progress toward achieving program goals.
    3. To determine if program meets student needs.

SPECIAL POPULATIONS

"Special populations" students are those who are either economically disadvantaged, academically disadvantaged, handicapped, or at risk of dropping out. The economically disadvantaged, academically disadvantaged, and handicapped are identified using state-prescribed criteria.

Many conditions, which may occur at any time during a student's academic life, may adversely affect the student causing the student to become "at risk."

Special populations students are currently provided special services through the following resources:

Tuscaloosa City Schools

- Special Populations Coordinator
- Program FUTURE
- Parkview Learning Center
- Counselors
- Teachers
- Project Oak Trees Child Development Center
- Project SERVE
- JTPA
- Summer Youth Employment Training Program
- New Visions Plan
- Adult Vocational Classes

Shelton State Community College

- Tutorial Program
- JTPA
- Talent Search
- Adult Basic Education
- New Options Program
- Career Alternatives Program
- Counselors
- Instructors

Community

- Interagency Council
- State Department of Vocational Rehabilitation Services
- Indian Rivers Mental Health Center
- JOBS Program
- Department of Human Resources

These sources provide special populations students with individual help in academic, personal, social, and/or career areas at secondary, postsecondary, and adult levels.

Specific objectives for special populations students are as follow:

- Identify and continue to provide services to special populations. These students will be given counseling and guidance by the various agencies and will be encouraged to actively participate in programs. Child-care services, stipends, tuition, and purchase of equipment and supplies, if appropriate, will be provided as incentives for students to continue their education and to obtain skills preparing them for a vocation that requires specialized training.
- Recruit students through school counselor contacts and referrals from community and social service agencies such as Department of Human Resources, Adult Basic Education, New Options, JOBS, JTPA, and State Department of Education, Divisions of Vocational Rehabilitation Services, Vocational Education Services, and Special Education Services.
- Seek grants for funding for additional programs and services. Specific programs to be pursued are the ReEnter Program and Sex Equity Program.

LOCAL POLICIES

The effects of local policy issues are described below.

Issue	Effect
Equal Opportunities	All students have equal access.
Student Recruitment	All students receive orientation to all available programs.
Tuscaloosa Course of Study	All students receive information about all available programs.
Teacher Certification	Every class must be taught by a teacher who meets state requirements.
School Calendars	All students will be subject to board-adopted calendars.
Student Selection Criteria	• Some students are in courses appropriate to both career goals and ability. • Some students are in courses that are inappropriate for interest, aptitude, or ability.
Secondary-Postsecondary Articulation	All students are able to move from secondary program to postsecondary program without duplication of training or cost.
Job Placement	• All students are placed in training sites specific to their occupational objectives. • Completer students are given job placement assistance by individual vocational instructors. • Postsecondary completer students also have the availability of the Career Center and Career Alternatives for placement services.
Assessment	• Semester exams are required in all courses. • All students take the Alabama Basic Competency Test, Alabama Basic Skills Test, Differential Aptitude Test, and Alabama End-of-Year Algebra Test at the appropriate times.
Work Experience	All students are governed by local and state guidelines.
Student Certification	All students who complete vocational/technical programs are given a certificate of completion and a competency profile.

The main objective in this area is to operate within local school system policies.

BUDGETARY AND FISCAL CONSIDERATIONS

It is impossible for a Tech Prep program to be successful without adequate funding.

Resources currently received for the implementation of the Tech Prep program are local funds, state and federal vocational funds, and special Tech Prep grant funds. Resources needed on an ongoing basis are funding for equipment, facilities, materials, and supplies; teacher salaries; staff development funds; and program maintenance funds.

Potential resources to be sought for the future are federal grants, foundation grants from business/industry, and private sector funding. Specific objectives will be to identify sources of funds and to develop proposals for grants for funds.

PROGRAM EVALUATION

A comprehensive evaluation will be conducted by the West Alabama Tech Prep Consortium using a team approach that includes at least one member from each of the designated committees of the Consortium: Executive Steering, Implementation, Staff Development, Marketing, Articulation, and Business/Industry. The Evaluation Committee will have direct responsibility for the plan of this evaluation.

In addition to the evaluation conducted by the West Alabama Tech Prep consortium, a local evaluation will be conducted by the Tuscaloosa City Schools and Shelton State Community College. This local evaluation will be based on a concept paper issued last year by the U.S. Office of Education.

The objectives of the local evaluation will be

- to document the development of the Tech Prep program, and
- to identify effective practices in the Tech Prep program.

Evaluation issues and areas to be addressed under each are listed below:

Evaluation Issues

- How does Tech Prep change the educational program?
    1. Nature and depth of articulation
    2. Scope and nature of curriculum change
    3. Use of career clusters
    4. Emphasis on advanced skills
    5. Changes in instructional approach
    6. Approach to career education and guidance
- What organizational resources and methods promote Tech Prep development?
    1. Governance structures
    2. Funds and resources
    3. Staff development and training
    4. Tech Prep promotion methods
    5. Approach to local and state monitoring and evaluation
- Who is served in Tech Prep?
    1. Who participates
    2. Recruitment and selection practices
    3. Assessment and guidance practices
    4. Approaches to promoting access for special populations
- How does Tech Prep affect student outcomes?
    1. Attainment of postsecondary degree
    2. Postsecondary matriculation
    3. High school graduation
    4. Secondary and postsecondary performance
    5. Prospects for employment

All NCRVE-required evaluation reports will be submitted in a timely manner and a third party evaluator will be provided if deemed necessary. The State Department of Education and representatives of institutions or agencies desiring to establish similar programs and services will be given a copy of the evaluation reports upon request.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Central High School and
Shelton State Community College

Planning Component: Business/Industry Partnerships

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Establish and strengthen partnerships with business/industry.	1993-1994 (To be revised annually.)	Chairperson, Tech Prep Business/Industry Committee	Business/Industry representatives and Consortium members	List of local and regional businesses and industries	Active business/industry partnerships	Documented results of meetings (minutes, agendas, and plans)
Develop employment shadowing and mentoring process.	1994-1995 (To be revised annually.)	Tech Prep Coordinator at Shelton State	Consortium members, Chamber of Commerce, business and industry	Community collaboration and cooperation of local business and industry	Employment shadowing and mentoring plan	Written document on file and in use Number of people involved in program
Identify, develop, and teach work-based components.	1994-1995	Tech Prep Coordinator at Shelton State	Business/industry, teachers, and vocational directors	Funding and community collaboration	Better-skilled workers Better relationship between business/industry and education	Written plan identifying components Lesson plans documenting components

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Central High School and
Shelton State Community College

Planning Component: Business/Industry Partnerships (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Identify and publicize outcomes and benefits of Tech Prep program.	1993-1994 and continuous	Tech Prep Coordinator and Vocational Director	Faculties, counselors, parents, community representatives	Clerical staff support Funds for publicity	More students entering Tech Prep program	Documentation of activities
Integrate real-world work components into Tech Prep program.	1994-1995	Shelton State: Tech Prep Coordinator and curriculum specialist Tuscaloosa City Schools: Vocational Director and Director of Instruction	Business/industry representatives, teachers, and administrators	Clerical staff support Funds for promotion/support	Real-world work experience for Tech Prep completers	Documentation of activities

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Central High School and
Shelton State Community College

Planning Component: Guidance and Counseling

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Develop a comprehensive guidance and counseling program (K-16).	Begin in 1993; continuous updating	Student Services Specialist	All counselors, vocational director, and teachers	Administrative support, clerical help, SDE technical assistance, and NCRVE technical assistance	Provision of better services to students K-16	Written document
Develop strategies to help students define realistic career goals.	1993-1994 and continuous	Vocational Counselor-Central West	All counselors, teachers, students, parents, and community agencies	Assessment instruments, business/industry community cooperation, SDE technical assistance, NCRVE technical assistance, and SOICC use	Students better prepared to make realistic career choices	Documentation of strategies Use of strategies
Initiate cross-visitations of counselors among secondary and postsecondary schools.	Begin January 1994; continuous	Vocational Counselor - Central East Shelton State Career Center Coordinators	All counselors, administrators	Funds for travel	Counselors more familiar with all programs involved in Tech Prep	Documentation of visits
Initiate secondary student visitation to technical programs in postsecondary schools.	Begin January 1994; annually	Vocational counselors at Central East and West, Shelton State Career Center Coordinator, and Counselor at Eastwood Middle School	Counselors, administrators, students, and teachers	Funds for travel and transportation	Students more aware of technical options at postsecondary level	Documentation of visits
Initiate secondary student visitation to technical careers in business/industry community.	Spring and summer 1994; annually	Vocational counselors at Central East and West	Teachers, business/industry, administrators, and students	Mentors in business/industry	Students more aware of local technical careers and more aware of actual world of work	Documentation of visits

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Central High School and
Shelton State Community College

Planning Component: Guidance and Counseling (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Establish 12-month career counseling centers with additional full-time staff on secondary and postsecondary campuses.	1993-1994 school year	Vocational director	Administrators and counselors	Funding for materials/supplies and salaries	Available year-round counseling center	Existence of program Employment of counselors
Utilize and implement group guidance career-related activities.	Ongoing process	Shelton State Career Center Coordinator	Secondary students, counselors, and teachers	Extra-campus communications, transportation	Increased involvement for secondary students	Documentation of visits
Develop and implement group guidance career-related activities.	Begin November 1993; continuous	Vocational counselors at Central East and West, Tuscaloosa Center for Technology, and Eastwood Middle School	Business/industry representatives, teachers, counselors, and students	Career Week videos, brochures, and pamphlets, SOICC, other materials and supplies	Increased student focus	Documentation of activities Student surveys
Utilize state resources, including SOICC.	Begin November 1993; continuous	Same as above	Teachers, counselors, and SDE representatives	Computers, telephone lines, and State Employment Office	Better informed students re: career opportunities	Documentation of activities

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Central High School and
Shelton State Community College

Planning Component: Curriculum Development

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Identification of vocational/technical skills, academic skills, and life skills necessary for successful careers.	August 1995; ongoing	Vocational Director	Vocational teachers (secondary and postsecondary), counselors, business/industry representative for each service area	Staff development funds for teachers not on contract	Listing of skills necessary for successful careers	Existence of listing; written consensus of committee
Collaboration with vocational teachers, academic teachers, and business/industry representatives to develop curriculum standards.	1994-1995	Director of Instruction and Vocational Director	State Department of Education curriculum specialists	Existing state course of studies, local curriculum plans, occupational objectives, extended contract time	Revised courses of study reflecting Tech Prep objectives	Approval by local and state course of study committees
Development of new courses integrating vocational and academic curriculum.	September 1993 - August 1995	Director of Instruction and Vocational Director	Vocational and academic teachers	Staff development funds for teachers not on contract during summer months; release time for all teachers during school year	New courses as needed and developed	Course descriptions and general lesson plans, Board approval
Provision of incentives for teachers to develop curriculum during summer months.	Summer 1994; Summer 1995	Staff Development Office	Director of Instruction and Vocational Director	Funding	Funding for summer service	Incentives provided
Establishment of content-specific curriculum committees with business/industry representation.	By September 15, 1993	Director of Instruction and Vocational Director	Postsecondary articulation representative for each subject area, classroom teachers	None	Functioning curriculum committees	Committee member roster and schedule of meetings

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Central High School and
Shelton State Community College

Planning Component: Curriculum Development (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Correlation of business/industry input with currently existing secondary school planning curriculum subcommittee.	1993-1994	Director of Instruction and Vocational Director	Business/industry curriculum subcommittee	Integrated Tech Prep plan	Business input into recommendations for new Tuscaloosa City School curriculum	Minutes of meetings
Establishment of workshops on curriculum development for faculty.	September 1994 - August 1995	Staff Development Office	Secondary and postsecondary faculty and administrators; Director of Instruction and Vocational Director	Staff development funds, consultants, State Department of Education personnel	Changes in existing curriculum to reflect Tech Prep philosophy	Calendar of workshops, registration of attendance Evaluation forms completed by participants
Peer and off-site observations	September 1994- August 1995	Staff Development Office and Vocational Director	All administrators and faculty at Central, TCT, and Shelton; business/ industry public relations personnel	Release time for teachers' travel experiences as needed	Increased awareness of the use of a teacher's subject in a local work situation or in other subject areas	Visits by faculty members Evaluation form completed by participants

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Central High School and
Shelton State Community College

Planning Component: Articulated Curriculum

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Develop structured and sequenced program of study for four Tech Prep options: 1. Business 2. Health and Human Services 3. Engineering Industrial 4. Arts and Communications	Begin 1993 Sept. 1993 Sept. 1993 Sept. 1993 Sept. 1994	Director of Instruction and Vocational Director	SDE representatives, NCRVE team, Consortium members, and teachers	Curriculum guide, funding, and clerical help	Structured and sequenced program of study for Tech Prep	Documentation
Complete articulation agreements between secondary and postsecondary • vocational/technical areas • academic areas	Begin Review in 1993 Continuous Ongoing Ongoing	Articulation Committee Chairperson	SDE representatives, teachers, and administrators	Released time for educators and clerical help	Completed articulation agreements	Documentation

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Central High School and
Shelton State Community College

Planning Component: Staff Development

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Plan for needed staff development activities.	1993-1994	Staff Development Directors at both City Schools and Shelton State Vocational Director	Faculties, administrators, and business/industry representatives	SDE technical assistance and NCRVE technical assistance	Staff development plan	Document
Provide incentives for teachers to participate in staff development.	Begin 1993-1994 Continuous	Staff Development Directors at both City Schools and Shelton State Vocational Director	Faculties, administrators, and business/industry representatives	SDE technical assistance, NCRVE technical assistance, and funding	Released time, stipends, summer work, and other options	Provisions of incentives Documentation of participation
Conduct planned staff development activities.	Begin 1993-1994 Continuous	Staff Development Directors at both City Schools and Shelton State Vocational Director	Faculties, administrators, business/industry representatives, and consultants	Funding, facilities, and materials/supplies	Staff development activities conducted	Documentation of attendance by participants

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Central High School and
Shelton State Community College

Planning Component: Marketing

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Develop a quarterly newsletter and descriptive brochures.	1993-1994 school year	Special Populations Coordinator and Marketing Committee Chairperson	Publicity Committee, printers, students, and teachers	Clerical help, funds for printing and postage, and released time	Increased enrollment; decreased resistance to program; and increased community awareness	Distribution records Copy of materials
Provide staff development.	1993-1994 school year	Staff Development Office	Teachers, vocational director, counselors, and administrators	Clerical help, funds for printing and postage, and released time	Increased enrollment; decreased resistance to program; and increased community awareness	Increased number of teachers willing to support Tech Prep program
Develop a counseling manual.	1993-1994 school year	Central East Vocational Counselor	All other counselors, vocational director, and teachers	Clerical help and funds	Increased Tech Prep population	Distribution and use of manual
Organize a marketing teams representing business/industry.	1993-1994 school year	Central East Vocational Counselor and Marketing Committee Chairperson	Counselors, administrators, and committee members	Clerical help and funds	Greater business/industry participation	Record of team memberships
Produce a videotape.	1994-1995 school year	Marketing Committee Chairperson	Secondary and postsecondary educators	Funds for production of video and technical assistance	Increased awareness of and enrollment in Tech Prep program	Actual videotape Record of distribution
Establish a summer intern program for educators and students.	1994-1995	Staff Development Office	Vocational director, counselors, teachers, students, and business/industry	None	Career-related experiences for teachers and students	Written plan and record of participation
Make presentations at PTA and faculty meetings.	1993-1994	Marketing Committee Chairperson	Team members and teachers	Videotapes, speakers, and brochures	Enhanced awareness of Tech Prep Increased enrollment	Survey (faculty, parents, students, and business); record of presentation

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Central High School and
Shelton State Community College

Planning Component: Marketing (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Organize and conduct Career Week activities	1993-1994 school year	Vocational counselors at Central High	College registrars, admission office, students, parents, and business/ industry	Clerical support personnel and funds for materials and supplies	Students will be better educated about career and educational opportunities in the area.	Surveys of the following: students, business/industry, and college representatives Increased enrollment in Tech Prep programs

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Central High School and
Shelton State Community College

Planning Component: Student Assessment

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Determine potential measures for assessment.	1994-1995 school year	Special Populations Coordinator	Faculty, administrators, and counselors	State Department of Education technical assistance	Potential assessment measures	Listing of measures
Develop a student portfolio measure.	1994-1995 school year	Vocational Director	Teachers and staff development personnel	Funding Clerical help	Portfolio assessment development	Guidelines for portfolio
Provide staff development on student assessment.	1994-1995 school year	Staff Development Office	Teachers and counselors	Funding for released time	Utilization of portfolios assessment methods	Documentation of staff development
Use results of student assessment: • Evaluate and modify existing programs. • Measure progress toward achieving program goals. • Determine if program meets student needs.	1994-1995	Teachers and Vocational Director	Students, parents, principals, and counselors	State Department technical assistance	Improved programs	Documentation

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Central High School and
Shelton State Community College

Planning Component: Special Populations

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Identify and continue current programs providing services	Fall of 1993-1994 school year	Special Populations coordinator	Teachers, administrators, and counselors	Community cooperation	Utilization of services	List of all programs available
Recruit special populations students for Tech Prep program	Annually	Vocational counselors	Teachers, administrators, and counselors	Brochures, newsletters, and video	Enrollment of special population students	Documented class enrollments
Seek additional funds through grant-writing procedures	1993-1994 school year	City schools and Shelton State grant writers	Teachers and counselors	Sources of grants and clerical help	Sufficient funds to operate the program	Awarded grants
Explore additional program options: • ReEnter Program • Sex Equity Programs	• Spring of 1994 or 1994-1995 school year as funds become available • 1994-1995	Special Populations Coordinator; City schools and Shelton State grant writers	Teachers, administrators, counselors, and students	JTPA technical assistance SDE Technical assistance	Students who have dropped out of school will reenter and complete the program of their choice. Assistance will be promoted to ensure enrollment of both sexes.	JTPA ReEnter Program documentation; grant awards and program documentation

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Central High School and
Shelton State Community College

Planning Component: Local Policies

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Operate within local school system policies.	Continuous	Director of Instruction and Vocational Director	Teachers, counselors, students, and administrators	Local policy manual	Program will meet local policies.	Documentation

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Central High School and
Shelton State Community College

Planning Component: Program Evaluation

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Document program development using data collected in 1992-1993 as a baseline.	1993-1994 and annually	Vocational director	Counselors and Tech Prep team	Data from 1992-1993 and clerical help	Documentation of program development	Data documentation
Identify effective practices in the Tech Prep program.	Annually	Evaluation Committee Chairperson	Teachers, administrators, team members, counselors, and students	SDE technical assistance, HSTW site visit, and NCRVE site visit	Recognition of effective practices and continuation of them	Documentation
Meet monthly to continue development and implementation of the Tech Prep plan.	1993-1994	NCRVE team leader	Other team members	Materials and supplies	Continued and strengthened teamwork	Minutes of meetings

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Central High School and
Shelton State Community College

Planning Component: Budgetary/Fiscal Consideration

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Identify funding resources.	Fall 1993; ongoing	Grant writers	State Tech Prep coordinator, business/industry private grants, teachers, and U.S. Government	Federal Register, index of grants from foundation and private resources, funds for subscriptions to federal register, grant writer and team	Budget for Tech Prep List of potential sources of funds	Documentation
Develop proposals for grant funds.	1993-1994 annually	Grant writers	Teachers and counselors	Clerical help	Proposals submitted for numerous grants	Documentation

DETROIT PUBLIC SCHOOLS
GOLIGHTLY CAREER AND TECHNICAL CENTER
HIGHLAND PARK COMMUNITY COLLEGE
HENRY FORD HIGH SCHOOL
DETROIT, MICHIGAN

Planning Document Developed at the NCRVE 1993 National Institute:
"Establishing Integrated Tech Prep Programs in Urban Schools"[*]
July 14-23, 1993

BACKGROUND INFORMATION

Institutions and Members of the Tech Prep Team

Detroit Public Schools

- Joyce M. Tibbs, Director of Career and Technical Education
- Cora Eubanks, Assistant Director of Career and Technical Education

Golightly Career and Technical Center

- L. Kimberly Peoples, Director
- Joel Silvers, Program Manager for the Mass Media Program
- Dennis Moore, Instructor in Mass Media

Highland Park Community College

- Carolyn Ford, Coordinator
- LaVerne McKesson, Mathematics Instructor
- Ruth Wiley, Chairperson, Applied Academics Mathematics Component

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[*] This is a working paper. It has not been reviewed by either the NCRVE or the educational institutions/agencies where the authors are employed. Therefore, this paper represents the views of the authors only.

Henry Ford High School

- Elijah Porter, Principal
- Larry Dozier, Guidance Counselor
- McArthur Mickens, Mathematics Department Head/Tech Prep Coordinator
- Ernestine Wilson, Mathematics Instructor

State Representative

- Charles Gosdzinski, State Contact for the Integration of Academics and Vocational Education and Secondary Contact for Michigan's Statewide Tech Prep Initiative

Business/Industry Partner

- Robert P. Jones, Account Manager, Michigan Bell Telephone Company

PHILOSOPHY

The workplace of today requires advanced technical skills, along with the ability to comprehend complex theories and processes that are common to rapidly emerging and changing technologies. A need for these proficiencies comes at a time when the majority of our students leave school without the knowledge or foundation skills necessary to obtain and hold a job. Implementation of a Tech Prep program can address the changes required to ensure every student has access to a lifetime of meaningful employment, continued growth, and optimal achievement.

The ongoing commitment of the Partnership 2000 Consortium supports the purpose and task of creating educational experiences that enhance the skill and competency levels of all students. It is the responsibility of the consortium to verify the inclusion, within all programs and courses, of the critical thinking, academic, and technical skills necessary for success in the present and future workplace.

A major aspect of this restructuring process is the collaborative formation of business, industry, labor, and community-wide partnerships with secondary and postsecondary institutions. This coalition represents a unified initiative for restructuring educational systems and programs to meet the needs of students in the urban school districts and community college settings. Goals, operations, and activities of the consortium are based upon the fundamental premise that it takes the combined efforts of all partners to create a career path that promotes a continuum of equitable opportunities and successful outcomes for all participants in the Tech Prep program.

MISSION

The mission of the Detroit Public Schools Educational System is

> to become the first large urban school district to successfully educate all of its students. Our primary focus must be on students and how they learn. Student achievement must be measured with broader definitions of success, encompassing the thinking and social skills of students.

The underlying principles of this mission statement are shared by participating secondary and postsecondary institutions within the consortium and are aligned with its philosophy and mission.

Unemployment rates in Detroit and Highland Park are among the highest in the nation. Jobs in the metropolitan area require specific skills at performance levels of proficiency. The most lucrative entry-level employment opportunities are in clerical services, health occupations, cosmetology, food services, automotive repair services, and banking services.

Tech Prep Partnership 2000 will design and implement a Tech Prep system that is restructured to establish an integrated continuum from secondary to postsecondary education with entry into a selected field of employment as a viable option for each student.

Defining Terms

Vocational/Technical Skills

Abilities needed to perform tasks related to a specific career (e.g., Mass Media, Visual and Applied Communications, Accounting, Electronics).

Integration

An ongoing collaboration, dialogue, and restructuring process, linking vocational and academic curricula with secondary/postsecondary and business/industry partners.

Tech Prep

A system of technical, academic, and career programs arranged in an articulated continuum, linking K-14 studies with options that provide seamless transitions from school to work and lifelong learning.

Applied Academics

A special style of hands-on learning where applications and users are the gateways to understanding theory. Applied academics can produce applied learning outcomes in mathematics, science, and communication courses.

Apprenticeship

A program supported by the Department of Labor where agreements between trade unions and educational institutions promote work/study training that leads to formal trade credentials.

Consortium

A coalition of private and public sectors formed to collectively promote achievement of specified goals that are mutually beneficial, but would be too difficult to accomplish independently.

Core Curricula

Broad-based student outcomes and fundamental competencies upon which to build a strong, locally responsive curriculum and verify that students have attained necessary educational experiences for a more productive future.

Employability Skills

Skills which enable a learner to secure employment in a chosen career. These skills include reasoning, problem-solving, and decision-making, as well as interpersonal skills, adaptability, employment search skills, personal management skills, and adoption of a work ethic.

Restructuring

A process for development of a systematic design with new configurations of existing educational components to provide students with skills required for social and economic survival.

Essential Task

A unit of required skills and competencies which are measurable and observable. A task consists of two or more definite steps that each student must demonstrate in order to pass a course.

Current Programs

The Detroit Public Schools and Highland Park Community College have been involved in the planning and development stages of an Integrated Tech Prep Program since 1990-1991. Thus far, several programs such as in CAD/CAM and automotive technology have been articulated with postsecondary institutions and are now ready for implementation during the 1993-1994 school year.

During the 1993 Summer Institute at Berkeley, the Detroit Public Schools and Highland Park Community College built on this promising partnership that has evolved since 1990. The work at the 1993 Summer Institute concentrated upon constructing a prototype for Integrated Tech Prep Programs that will eventually be developed for the fifty-eight technical and career programs offered by the Detroit Public Schools. This prototype Integrated Tech Prep Program will consist of a closely integrated relationship between the Math Department of Detroit's Henry Ford High School, the Mass Communications Program at the Golightly Career and Technical Center, and the Visual and Applied Communications Program at Highland Park Community College. In addition, planning is currently well underway to include the Michigan Bell Telephone Company's Television Production Department in a working partnership with this Integrated Tech Prep Program. This partnership will therefore involve one of Michigan's largest corporations as a source of program support for practica and co-op placements, apprenticeships, monitoring, and, in some instances, job placements for graduates of the 2+2+2 program.

The prototype Integrated Tech Prep Program initiated during the 1993 Berkeley Summer Institute will begin in the ninth grade at Henry Ford High School, where students will be exposed to career counseling and four-year course planning through the Guidance and Counseling Department. Between five and ten students will be identified for their interests and aptitudes in the Mass Communications field. These students will then be placed in the newly developed integrated Algebra I classes at Ford, in preparation for their enrollment during the eleventh grade in the Mass Communications program at Golightly. Once enrolled at Golightly, they will continue to be scheduled for advanced integrated Math classes and integrated English courses at Ford, where they will continue taking their academic subjects.

The Golightly Mass Media Communications program, upon which the Detroit school system is currently focusing its development of an Integrated Tech Prep prototype, is a program that provides hands-on training in a wide range of sophisticated television and radio production skills. This program is uniquely equipped with state-of-the-art production facilities and is developing an innovative curriculum that will serve as a model for other curricula currently under development. The students in the Golightly Mass Communications program spend a half of each school day over a two-year period receiving intensive specialized instruction, and they regularly produce award-winning television documentaries, commercials, and community interest programs that have been aired on Detroit's public television station, WTVS. Golightly students have received top honors at the Michigan Student Film and Video Festival, Vocational Industrial Clubs of America, and the National Association of Broadcasters.

The technical instructional areas and activities of the Golightly Mass Communications Program include

- camera operation with a range of film and television cameras;
- post-production and editing using sophisticated computerized on- and off-line editing systems;
- technical directing and switching;
- audio engineering, using a variety of sophisticated multichannel mixing consoles, multitrack recorders, and signal processors;
- techniques of lighting, using computerized lighting grids and a full range of location lighting equipment;
- computer-generated graphics, animation, and special effects;
- production of TV studio talk shows;
- development of story boards for dramatic and film style productions;
- writing and producing dramatic and film style programs;
- writing and producing on-location documentaries reflecting the urban environment; many have been featured on public television, Channel 56, in Detroit;
- producing music videos;
- producing radio and television commercials and public service announcements; and

- airing weekly music, and informational radio programs on WDTR, 90.9 FM, Detroit Schools' citywide radio station.

Throughout the two-year Mass Media program, there is a major emphasis both on the development of writing skills for broadcast and visual media and the creative development of meaningful, socially oriented content.

Among the special strengths of the Golightly Mass Communications program is its present integration of a wide range of academic and technical instructional content through its focus on a series of sequential production projects. The projects have successfully motivated and inspired student involvement. As a result of group development of projects with content which seems meaningful and serious to students, students have been motivated to develop and strengthen academic and technical skills. This program is therefore already a prime example of an application of "contextual learning." Another innovative strength of this program is the involvement of its students in actual, as opposed to simulated, production activities outside of the restricted and artificial confines of the typical classroom. Because students are out in the "real world" working on television and radio productions, they are automatically engaged in activities. Because of this engagement, they are motivated to learn and grow both technically and interpersonally. This type of experience results in a much broader kind of interdisciplinary and integrated learning than in the traditional, academically oriented classroom.

One major weakness in operating a program such as this is its heavy reliance on sophisticated and expensive state-of-the art equipment that must constantly be upgraded in order to maintain a level of instruction which reflects the rapidly changing broadcast and media production industry. Within the last few years, there has been an overwhelming shift from analog production/recording/editing technology to digital, computer-based technology. Although this technological shift suggests many exciting possibilities, it also represents major technological changes which must now be incorporated into our Mass Communications curriculum and budget.

Another major weakness in the operation of the current Mass Communications program—as with almost all other technical curricula—is preliminary preparation of the students who select and enroll into the program. For instance, many of these students (as motivated as they are to participate in the program) do not have a realistic notion of what the program demands. They are sometimes unable to function at an academic competency level that would allow them to fulfill their initial expectations of the two-year program. Because of academic deficiencies in basic reading, writing, and math skills, many of the students find themselves unable to take advantage of the entire curriculum.

It is this major weakness, inadequate preparation of students who enter technical programs such as the Mass Communications program, that implementation of Integrated Tech Prep with the Henry Ford High School Math Department can address. By exposing students to mathematics (as well as language arts courses) in which connections between theory and applications have been made, students will be prepared to master additional skills and concepts during their two years in the Mass Communications program at Golightly. Graduates of this two-year program will therefore be in a much better position to go on to advanced placement in programs such as the Visual and Applied Communications (VAC) program at Highland Park Community College.

The current VAC program at Highland Park Community College includes an array of courses in television production, communications theory, business practices, and computer generated graphics leading to an Associate's Degree of Applied Communications. This program is designed to prepare students for careers in the television, film, telecommunications, and advertising industries. Emphasis throughout the program is on the integration of technical and academic skills, basic concepts of television production, and on-the-job work experience. A minimum of 67 hours is required.

In addition, the VAC program supplies audiovisual services to the college and provides educational media services to the community at large. Project KIND (Kindle, Intensify, Nurture, and Direct), for instance, is a program developed within the college to establish integrated math, communications, and science instructional units in the Highland Park Schools by using telecommunications. This program is based on a collaborative articulation agreement between the District of Highland Park Public Schools and General Motors Institute.

The Highland Park VAC program is currently working to provide expanded career track opportunities that will help develop marketable employment skills through integration with the Greater Detroit telecommunications industry. These expanded opportunities involve working partnerships and relationships with Telemedia Cable, Barden Cablevision, Continental Cable, WDIV-TV, WXYZ-TV, B.A.R.T., WJBK-TV, and various other broadcast and telecommunications companies.

It is expected that students from Golightly who enroll at Highland Park as part of the 2+2+2 Integrated Tech Prep Program will be able to "place out of" most, if not all, of the first year TV production courses based upon the competencies acquired at Golightly. They will therefore be able to receive a yet-to-be-determined number of community college credits towards an Associate Degree from Highland Park and thus be allowed to enroll in the more advanced theory, business-oriented, and computer-related classes currently offered in the VAC program. In addition, the Highland Park VAC program is currently in the process of re-evaluating its structure and course offerings so that they will more closely align with the emerging technologies and expansions in the media industry.

In conclusion, an Integrated Tech Prep Program can address the crucial concern of updating and maintaining a state-of-the-art technical facility, and it can enhance the educational outcomes of currently existing and successful technical curricula at both the secondary and postsecondary levels. In this regard, the development of the Integrated Tech Prep program—in conjunction with the Henry Ford High School Math Department, the Golightly Mass Communications Program, and the VAC program at Highland Park Community College—can serve as a prototype for the implementation of Tech Prep programs in mathematics and each of the 58 technical and career programs offered by the Detroit Public Schools.

INTEGRATED VOCATIONAL AND ACADEMIC LEARNING

Tech Prep	Structural Sequence
Grades	Employment and Lifelong Learning
	Employment and/or University
13–14	Employment and/or Community College and/or University
12–13	Workplace Training and/or Pre-Campus Course
10–11	Specialization Program or Pre-Technical Program
9	Core Courses and Career Planning
6–8	Career Development

Structure of the Integrated Tech Prep Program

Partnership 2000 has an Integrated Tech Prep educational program that is designed to accommodate all students who elect to enroll in a career and technical program. Since only two options are available for high school students in Detroit and Highland Park, all students who are not in a College Prep program are automatically Tech Prep students. Because possibilities exist for students to participate in both College Prep and Tech Prep programs, some of the College Prep students may also be Tech Prep students.

Structural relationships for the Integrated Tech Prep program are supported by two career and technical options at the high schools. For those students who want to remain on the high school campus for a full-day program, a pretechnical curriculum offers twenty-three program options. Pretechnical programs introduce students to the fundamental skills that are required for entry-level employment with opportunities for upward mobility. Limited possibilities also exist for advanced placement at the community college in a compatible, articulated program.

Fifty-eight specialization programs are available for students who elect to take classes at the career-technical centers. For career-technical center programs, two and one-quarter hours are spent daily in a series of specified courses over a two-year period. These sophisticated training programs offer maximum advanced placement credit at the community college and prepare high school students for entry-level jobs that require definitive technical skills and some on-the-job experience.

Entrance into both the pretechnical and specialization programs is preceded by completion of related core courses and career planning activities during ninth grade. Each program requires completion of a sequential series of technical and related academic courses (mathematics, science, communications). Students must complete two years of Algebra in order to graduate from high school. Integration of Algebra with mass media defines the utility of mathematics for proficiencies in mass media. A minimum of two years of study in Algebra and mass media is mandatory for completion of both programs.

A cooperative work-site experience in the twelfth grade is available to all Tech Prep students. The major difference between pretechnical and specialization programs is in the amount of required training time (twice as much for specialization as for pretechnical) and the caliber of equipment available for training purposes. Specialization programs are maintained with the most up-to-date, state-of-the-art equipment. The disparity in training time, facilities, and equipment provided for learning experiences impacts severely on the level of skills that can be obtained in a pretechnical versus a specialization program.

Access to employment and/or the community college and/or the university with articulated credit in grade thirteen and subsequent transfer to the university is a major advantage of both pretechnical and specialization programs. Community college credits are to be articulated with correlated university programs and accepted by participating universities as two years toward a baccalaureate degree.

Faculty members from technical and academic programs are included in the Tech Prep structure and operation. Some community college courses are available to high school students before graduation from high school. Students entering grade twelve may enroll and receive college credit for these courses which are taught by college faculty at the participating high schools. Both pretechnical and specialization programs prepare students for a lifetime of continuous learning and successful experiences as productive and contributing citizens.

Secondary and Postsecondary Articulation Plan for Partnership 2000

Essential Components of the Articulation Plan

- Course outcomes
- Linkage between institutions
- Personnel for selected programs/courses
- Leadership to conduct a process and obtain a product
- Commitment from top administrative levels
- Development of formal written agreements
- Signatures from Chief Executive Officers at each institution

Barriers to the Articulation Plan

- Resistance to change among faculty and staff members
- Scheduling difficulties for staff, faculty, and employers
- Poor delineation of student outcomes
- Lack of complete syllabi for each course to be articulated
- Tunnel vision
- Refusal to let go of "content dynasty"

Tech Prep programs will be developed in Mass Communications, Visual and Applied Communications, and Mathematics in 1993-1994. Students will benefit from the Integrated Tech Prep Media Program by participating in a sophisticated hands-on technical career program that includes Tech Prep integrated academics. The inclusion of vocational and academic integration will provide students with the marketable skills needed to meet employment demands of media business and industries.

LONG- AND SHORT-TERM GOALS

Statement of Measures

- Implement a two-option curriculum for the district's high school.
- Conduct staff inservice activities to support development and implementation of a viable plan with modified curriculum, materials, and facilities for transformation of the high school.
- Update curriculum to include an articulated and integrated sequence of occupational and academic outcomes for secondary and postsecondary students.
- Arrange working sessions for high school staff, college faculty, and employers to formalize agreements based upon predetermined student outcomes and design a certification process using employers to verify exit skills of students in articulated programs.
- Design student assessment instruments and programs for monitoring, analyzing, and reporting results of testing activities.
- Present staff inservices to develop assessment and reporting materials with operational strategies and tools.

- Achieve projections for implementation using continuous review and improvement techniques.
- Institute programs to improve attendance, retention, and achievement.
- Design and implement a strategic plan of recommended programs with a process for comparative analysis to determine the impact of technical preparation programs.
- Garner support of the community for technical preparation programs. The community support component will expand membership and involvement to include parents, members of the Boards of Education, and existing school/community activist groups.
- Promote development of unified efforts and agreements among all consortium members.
- Provide intensive training with collective decision making as a major strategy to produce a network of services, programs, outcomes, and worksites that will be mutually beneficial to all parties.
- Expand parameters of the Tech Prep career development and preparatory experiences to encompass grades Pre-K through 14 and participating universities.
- Design, adopt, and implement models for career development activities to demonstrate the value of career planning.

Student Outcomes

By 1995-1996, Tech Prep program students will

- perform as well as the district's average on the Michigan Educational Assessment Program (MEAP) test in mathematics, reading, and science.
- perform as well as the postsecondary average on the ASSET.
- maintain a retention rate that is equal to or greater than the average retention rate for all secondary and postsecondary students from the consortium's participating institutions.

Additionally, we project that

- ninety percent of program completers will be placed, and
- seventy percent of all enrollees will complete their integrated program of occupational and academic studies.

STAFF DEVELOPMENT SUBCOMMITTEES

Component	Purpose	Goals	Outcomes
Professional Support	Deliver site-based training programs for each professional support component.	Present format and procedures for joint professional development.	Building coordinators who are trained to facilitate implementation of integration programs
		Train site specialists and consultants to implement technical programs.	Site-based specialist consultants for each integration component
		Review basic content of training programs for each component.	Funtional integration programs operating as models in participating secondary and postsecondary institutions
Technical Core Curriculum	Formalize articulated agreements with postsecondary institutions.	Present format and procedures for restructuring Tech Prep programs.	Tech Prep programs that are vertically aligned from high schools to community colleges to universities
		Train curriculum specialists to isolate course requirements and outcomes.	Outcome-based instructional programs in Tech Prep
		Obtain contractual agreements between institutions.	Contractual agreements between high schools, community colleges, and universities
Integrated Curriculum Development	Institute a systematic approach for integrating conceptual learning methodologies within the content of academic courses.	Correlate the content of academic courses with technical applications in an outcome-based format.	Models of academic programs with contextual learning methodologies
		Design system for instruction and management of academic course content in an applied mode.	High school academic programs articulated with community college academic programs
		Train a cadre of qualified staff to specialize in the delivery of theoretical concepts through contextual instructional strategies.	Academic specialist trained in the use of application and outcome-based teaching strategies

Staff Development Subcommittees

Component	Purpose	Goals	Outcomes
Community Support	Provide opportunities for meaningful community participation in integration developmental activities.	Plan goal-specific experiences to address identified needs.	A community-based training plan
		Schedule series of workshops and programs at times and places most suitable for community participants.	A team of trained consultants to implement community-based programs
		Assist community consultants in their effort to provide integration information and services to their school-based communities.	Community-based support groups
Guidance and Counseling	Restructure content and process of guidance counseling activities to ensure students' successful participation in a two-option curriculum.	Provide professional development activities to facilitate the transition for guidance staff to a two-option career development program.	Counselor-consultants who are trained to maintain efficient operation of site-based guidance programs
		Organize materials and directions needed to promote rapid conversion of guidance and counseling functions.	A series for career development and programming materials sequenced for ease of use
		Train site-consultants to maintain districtwide consistency and uniformity in programming, recordkeeping, and reporting.	A reporting process to track results of career development activities
Learner Support	Design and implement a preparatory program to increase achievement levels of special populations.	Develop a uniform classroom support system for integration of vocational and academic learning.	Comprehensive learner support programs with accompanying media and materials
		Train support specialists to deliver specialized preparatory services.	Site-based learner support specialists who can assist in the development and operation of other preparatory programs
		Install data-based systems to maintain service records and achievement reports.	A districtwide data-based process for reporting programmatic results

Staff Development Subcommittees

Component	Purpose	Goals	Outcomes
Placement Support	Develop an employability skills assistance program to prepare students for successful postsecondary experiences.	Create a systematic interface of partnerships with employers and employing agencies in the metropolitan area.	Appropriate placements for graduates in jobs, colleges, and apprenticeships
		Train site-specialists in techniques for conducting mini-courses to develop students' employability skills.	Site-based specialists to provide full access to employability skills training programs for students and staff trainees
		Provide an interfaced system of recordkeeping for follow-up placement reporting.	Data-based placement reports for integrated programs in participating institutions
Marketing and Promotion	Conduct an ongoing campaign of public awareness, acceptance, and involvement in activities for the integrated curriculum.	Design an advertising structure and format inclusive of all committees, components, and institutions.	A marketing plan with specified requirements for implementation.
		Correlate promotional materials, media, and activities with strategic goals and objectives.	A strategic, objective, and continuous promotional campaign
		Train participants in the most feasible and effective methods and techniques for use of promotional media and materials.	Composite assessments of projected and actual impact for each promotional activity
Evaluation	Determine the effect of various factors on the viability of the integrated program.	Develop the assessment design.	A comprehensive assessment system for integration of vocational and academic learning
		Adapt and produce assessment instruments with related institutional materials.	An analytical reporting system
		Install a data-based system for reporting test results and supporting a correlated instructional system.	A correlated instructional support program

STAFF DEVELOPMENT

The Partnership 2000 Consortium provides services to Highland Park Community College, Wayne County Community College, Highland Park Public Schools, and Detroit Public Schools through a developmental and systematic process of purposeful inservice training and program development. A crucial aspect of the training is the mode and delivery of professional development that empowers each institution with continuous site-based support and training for implementation of Tech Prep components. Distinct advantages of the training process are inherent in the degree of self-sufficiency that can be achieved by school staff and college faculty in moving towards the autonomy required for ultimate institutionalization. Within the scope of five phases, a series of goal-directed activities prepare high school staff and college faculty to assume Tech Prep programmatic functions and responsibilities. Each phase describes a segment of the system that is designed to deliver the professional development services. The program implementation is illustrated in Appendix A.

Phase I - 1991-1992

The major focuses of Phase I are the organization and operation of three major committees and the subcommittees for Planning and Design. Committees are composed of secondary staff, postsecondary faculty, community members, and employers who currently are affiliated with participating institutions and surrounding communities. Committee members are selected on the recommendation of committee chairs who have identified them as specialization experts interested or involved in technical, academic, or related activities.

Each subcommittee is responsible for ensuring appropriate integration and articulation of a specific Tech Prep component with participating institutions. The work of the subcommittees is supported by the overall plan for implementation: "Procedures for Program Implementation." Adoption of a compatible mode for management of Tech Prep operations is the primary goal of Phase I. Phases II-V describe the program design recommended by the Planning and Design Committee for implementation of staff development activities.

Phase II - 1992-1993

Planning and Design subcommittee chairpersons automatically become members of the Professional Support Committee. Basic functions of the Professional Support Committee begin no later than Phase II. During this phase, the Tech Prep coordinators schedule a sequence of activities to assist chairpersons in defining their roles and accomplishing the tasks that are assigned to the subcommittees.

Each subcommittee represents a Tech Prep component, and members of the subcommittees are required to collectively develop training packages for professional development of coordinators and staff trainers in each school. Inservice materials will be presented to the consortium for approval before they are made available to the targeted colleges and high schools. As operational leaders and consultants for their committees, chairpersons facilitate the total planning and production process.

Phase III - 1992-1993

Phase III begins with the principals' selection of their building coordinators and commitment to the level of services desired for their schools. The principals will identify the extent of participation in Tech Prep that seems feasible for their schools for "Scope of Commitment" and "Agreement" (see Appendix B).

Once the parameters of service and participation have been established, building coordinators will be able to arrange for delivery of the appropriate scope and sequence of site-specific professional development programs. These programs will be adapted to accommodate the specific needs of each high school. The accommodation process will continue in effect until each school has completed the six-level cycle for total implementation of the proposed programs. Building coordinators will receive extensive training during this phase in preparation to assume a long-range Tech Prep leadership role in their buildings. All professional development activities will be planned and implemented jointly with secondary staff, postsecondary faculty, community participants, and employers.

Phase IV - 1993-1995

School staff and college faculty enter Phase IV with the charge to implement the components for which they have received training. After designated periods of operation, programs and participating students will be evaluated to determine the status of proposed outcomes.

Each of the preceding phases is linked to a recycling process that is designed to promote successful completion of each incremental step before proceeding to the next phase. This technique is included to ensure identification of problem areas and application of corrective mechanisms as they occur within the developmental system. The major object of phase recycling is to reduce students' need for costly regrouping and re-entry into the system at the end of the process.

Phase V - 1995

Successful integrated Tech Prep models will be presented for articulation with other postsecondary institutions, which initially will include colleges and universities within the geographical area of metropolitan Detroit. It is anticipated that ultimately articulated agreements will be expanded to a wide range of colleges and universities throughout Michigan.

Role of the Building Coordinator

A Tech Prep building coordinator/consultant has been assigned for each participating high school, and the selection of a Tech Prep coordinator for the designated community colleges has been approved by the community college presidents. For their respective institutions, these Tech Prep coordinators serve in the same capacity as high school building coordinators. Responsibilities for the building coordinator include but are not limited to the following duties:

- Work collaboratively with the school improvement team.
- Conduct site-specific needs assessment.
- Share mission, goals, and activities of Tech Prep with staff.

- Serve as liaison between the school and Tech Prep Partnership 2000 Consortium.
- Develop Tech Prep calendar of activities for the school and community.
- Communicate to staff the schedule of local, state, and national Tech Prep activities and professional development programs.
- Arrange for staff participation in appropriate professional development programs and conferences.
- Initiate Tech Prep meetings, training sessions, and seminars for staff, students, parents, employers, and the community as needed.
- Serve as the facilitator for implementation of Tech Prep programs within the building.
- Assess progress of Tech Prep program implementation.
- Assist in the evaluation of Tech Prep programs and achievement of proposed outcomes.
- Make periodic reports to the consortium, staff, and relevant publics on the status of Tech Prep implementation activities.

Building coordinators will work collaboratively and consistently with parents, secondary and postsecondary staff, and employers.

CURRICULUM DEVELOPMENT

Through the Technical Core Curriculum Committee, training will be provided for staff and faculty to restructure technical and academic courses. Student outcomes will be aligned for articulation with colleges, universities, and business/industry employment demands. Possibilities will be maintained for on-site training of secondary and postsecondary staff to acquire resources and reinforce skills needed to implement the restructured curriculum.

Curricular designs will prepare graduates with specialized skills for entry-level employment that leads to advancement or job promotion. It is expected that the curriculum will include a core of required integrated mathematics, science, and communications courses. Models will be developed to provide students with more advanced skills.

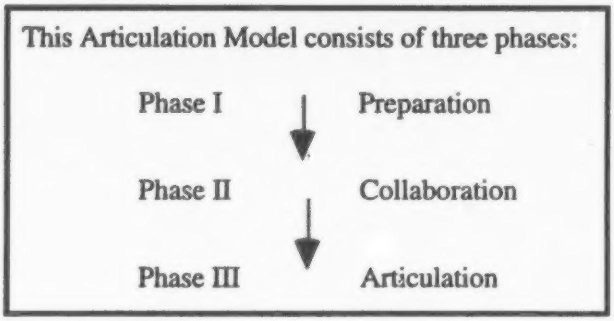
Agreements will be formalized between high schools, colleges, and universities for graduates to receive advanced placement in articulated programs.

Teams will be trained in designated content areas. Building coordinators will receive initial training in operational procedures for communicating needs and services to building and project staff. Workshops and trainers will be scheduled to address identified needs and requests from participating institutions. Needs-specific joint professional development and training programs will be designed and implemented for faculty, staff, students, and relevant publics.

Articulation Curriculum for Partnership 2000

Program tasks have been developed by committees in consideration of business/industry employers, recent graduates employed in entry-level positions, faculty, staff, and relevant community representatives.

In order for articulation between secondary and postsecondary partners to take place, technical and academic staff from both institutions must communicate student outcomes. The following articulation model has been developed to guide the communication process:

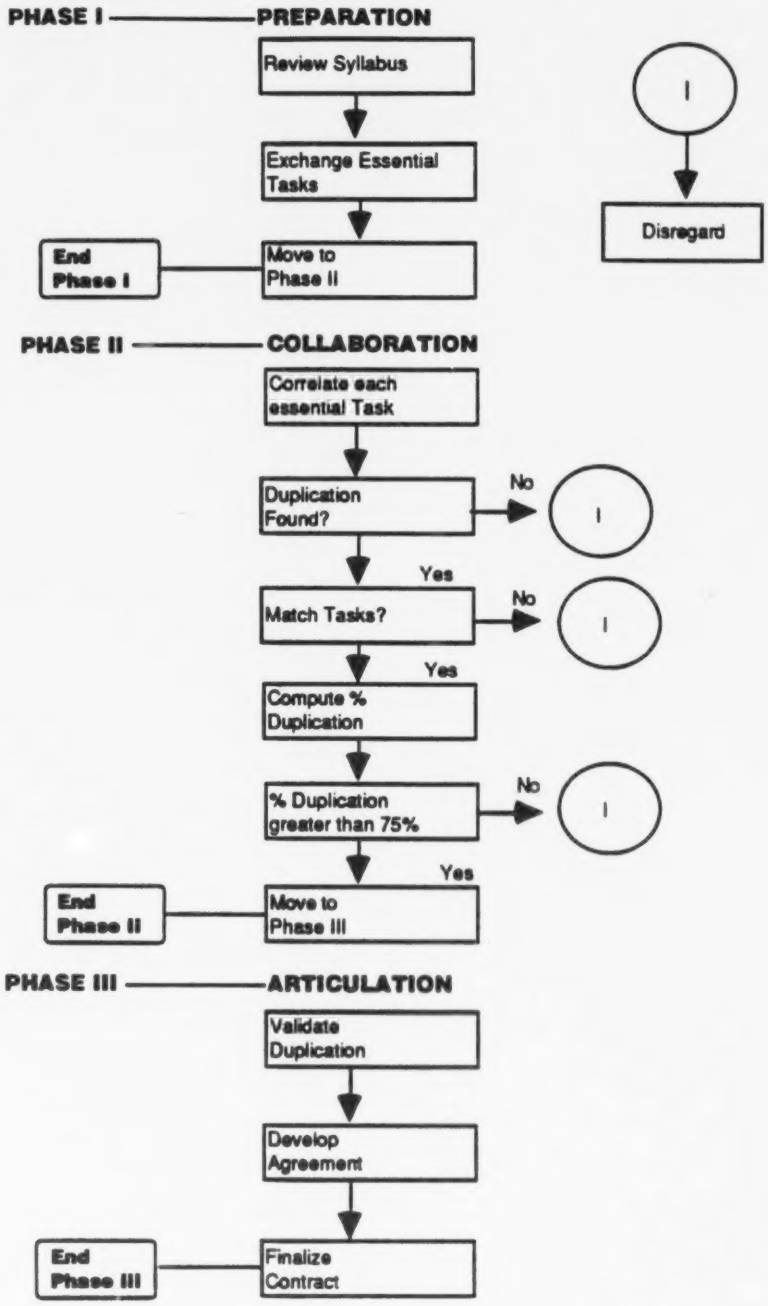


During the Preparation Phase, faculty at both the secondary and postsecondary institutions separately examine course syllabi to determine essential tasks. These essential tasks are submitted to curriculum staff at the partner institution to be examined prior to collaboration.

During the Collaboration Phase, technical and academic staff compare essential *exit tasks* of the secondary school program with the essential tasks of *entry-level* courses at the community college. When duplication is found, this is considered a match of tasks. After going through all tasks, the percentage of duplication is computed. When duplication is equal to or exceeds 75%, articulation is possible. The articulation recommendations are submitted for validation to the Curriculum Core Committee. Validation is followed by the development of an articulation agreement. Signatures are obtained from Chief Executive Officers to finalize contracts at the secondary and postsecondary institutions and to formalize the agreement.

This model is generic and will be used to articulate technical and academic courses within the program clusters of participating institutions.

TECH PREP PARTNERSHIP 2000 ARTICULATION MODEL


PHASE I
PREPARATION
Review Syllabus
Exchange Essential Tasks
Move to Phase II
End Phase I
I
Disregard
PHASE II
COLLABORATION
Correlate each essential Task
Duplication Found?
No
I
Yes
Match Tasks?
No
I
Yes
Compute % Duplication
% Duplication greater than 75%
No
I
Yes
Move to Phase III
End Phase II
PHASE III
ARTICULATION
Validate Duplication
Develop Agreement
Finalize Contract
End Phase III

Integrated Academics

All students at Henry Ford High School are required to take Algebra. This course as it is now taught via traditional methodology fails to demonstrate relevancy to real life goals for the majority of students. College Prep students accepted the importance of earning good grades in mathematics to improve chances of being accepted for matriculation at colleges of their choice. Integration of academics with technical applications helps all students recognize relationships between theory and real-life experiences. Thus, curriculum restructuring for integrated academics is a major component of the operational system for Tech Prep. Collaboration between technical and academic staff is essential to ensure accurate replication of real-world tasks.

Both groups, technical and academic staff, must engage in separate but similar preparation activities prior to collaboration if collaboration is to be successful. The competency in academics acquired in each academic course, integrated with technical applications generated by a collaborative process, will be consistent with the competency expected in the same academic course taught via traditional methods and materials. Course titles and objectives remain unchanged. Thus any student can confidently enroll in the integrated version. This represents total integration. Not only is the course curriculum integrated, but so are the students. Tech Prep students will not be segregated and perceived as needing watered down versions of "real" academics. Academic staff will have no reason to feel outsiders are taking liberties with their content. With integrated academic courses structured in this manner, all students eventually become the target population. For organizational purposes, we will begin by integrating Mass Media. Our long-term goal is to have all academics infused with related applications. A procedure has been established to facilitate cross-discipline interactions. This collaborative procedure for developing integrated academic activities is shown in the accompanying Collaboration Process chart.

Precollaboration activities for technical and academic staff differ in one aspect—constructs analyzed. This difference stems from differences in curriculum arrangement. Technical curriculum is arranged around tasks while academic curriculum is arranged around objectives. Prior to collaboration, a prototype, standard or typical example, for each essential objective and each task with special academic prerequisites must be selected. Prototypes provide a simple means of communicating course requirements to individuals unfamiliar with course content.

Identify objective	Translate word sentences into equations	
Essential	Yes	
Select prototype	Three less than half of x is 6	(word sentence)
	$(1/2)x - 3 + 6$	(translation)

Precollaboration is the first phase in the collaboration procedure. The product generated from this phase is a set of prototypes.

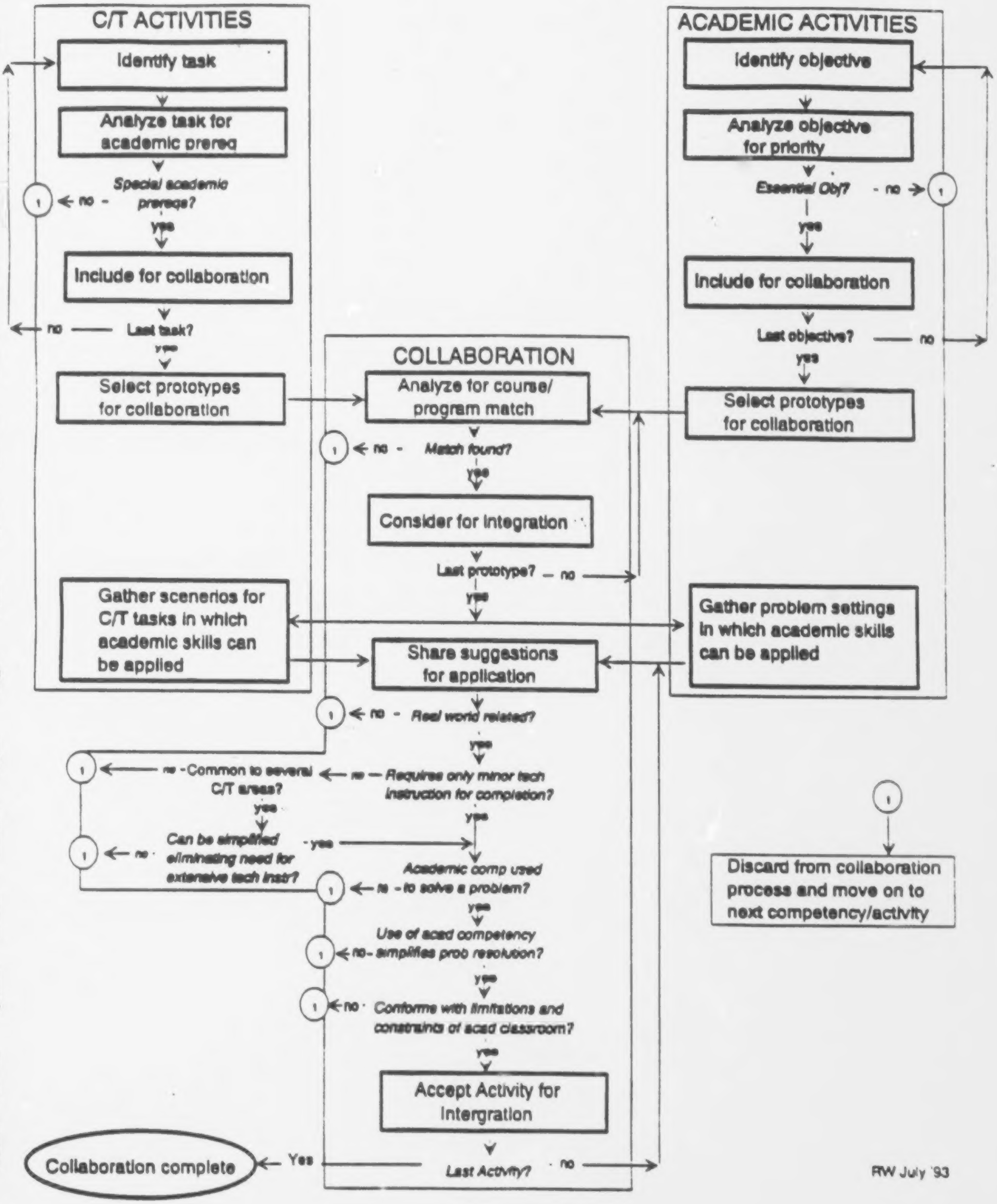
Actual collaboration is divided into two additional phases: (1) correlation and (2) evaluation. During correlation, prototypes are matched across disciplines and with appropriate courses and programs. In matched pairs, the technical prototype provides the context for application activities in the academic course. During evaluation, the legitimacy of the application activities is verified through a series of decisions made collaboratively. A chart summarizing the three phases in the collaborative process for developing integrated academics is included.

Collaboration Process

Phases	Purpose	Product
1. Precollaboration	Establish means of communicating course/program requirements.	Set of prototypes
2. Correlation	Establish context of application activities.	Scenarios/problem settings
3. Evaluation	Verify legitimacy of application.	Integration of academic course with real-work technical applications

This process is generic and can be used to promote effective and efficient collaboration among any disciplines. Formative evaluation of the process is being conducted with Algebra and Mass Media. The procedure will be used with other technical area programs (58 specializations and 23 pretechnical programs and mathematics areas—Geometry, Calculus, Precalculus, Probability, and Statistics). In addition, the process will be used with staff at Highland Park Community College. We will start with mathematics and the Visual and Applied Communication program. Visual and Applied Communication was selected because of its articulation with Mass Media.

ACADEMIC AND CAREER/TECHNICAL COLLABORATION PROCESS


C/T ACTIVITIES
Identify task
Analyze task for academic prereq
Special academic prereqs?
no
yes
Include for collaboration
Last task?
no
yes
Select prototypes for collaboration
ACADEMIC ACTIVITIES
Identify objective
Analyze objective for priority
Essential Obj?
no
yes
Include for collaboration
Last objective?
no
yes
Select prototypes for collaboration
COLLABORATION
Analyze for course/ program match
Match found?
no
yes
Consider for integration
Last prototype?
no
yes
Gather scenerios for C/T tasks in which academic skills can be applied
Gather problem settings in which academic skills can be applied
Share suggestions for application
Real world related?
no
yes
Requires only minor tech instruction for completion?
no
yes
Common to several C/T areas?
no
yes
Can be simplified eliminating need for extensive tech instr?
no
yes
Academic comp used to solve a problem?
no
yes
Use of acad competency simplifies prob resolution?
no
yes
Conforms with limitations and constraints of acad classroom?
no
yes
Accept Activity for Intergration
Last Activity?
Yes
no
Collaboration complete
1
Discard from collaboration process and move on to next competency/activity
RW July '93

Available Funding

During the 1993-1994 school year, traditional sources of revenue will be used to operate Tech Prep programs in the consortium. These resources are readily available through both internal and external sources. The initiative will combine Consortium Tech Prep Funds (sec. 343); Regional Grant Funds (sec. 201) Part A; and nonfederal, state, and local funds.

The allocation of funds across all subjects are as follows: Figure I - Local ($2,816,651 or 70%); Federal RFP ($511,734 or 12.3%); Perkins II ($464,938 or 11.5%); and Other ($250,000 or 6.2%). The total allocation for the Fiscal Year 1993 (FY93) is $4,043,323.

AT-RISK/SPECIAL POPULATIONS

As a result of many problems that our young people are experiencing in today's society, they have embraced means other than education to achieve their goals. Consequently, many students have dropped out of the mainstream of the educational system. Recently these students were given the designation, "at-risk" students. Generally speaking, at-risk students are lower in self-motivation, self-concept, and self-esteem. Also, at-risk students' attendance patterns are very erratic, and they frequently exhibit negative or self-destructive behavior.

A support system will be provided for at-risk students that combines the efforts between the stakeholders (e.g., local school districts, postsecondary institutions, the business/industry community, and the community at large). This support must be provided for at-risk students throughout their educational training.

At-risk students participating in the Tech Prep Integrated Curriculum at Henry Ford High School and Golightly Vocational/Technical Center will be provided tutorial services in math by Basic Education Support staff housed at Golightly. Relevant instructional equipment and integrated curriculum materials will yield increased achievement in math, science, and communication skills.

Outreach activities for students enrolled in the Integrated Tech Prep Program at Henry Ford High School will be

- Extended Day School,
- After-School Tutoring Program,
- Special Needs Summer Program,
- Vocational/Technical Training,
- Program for Academic Skills Strengthening,
- Special Populations Program,
- Outreach Program, and
- Upward Bound.

GUIDANCE AND COUNSELING

Counselors will conduct career exploration sessions with the eighth- and ninth-grade students. They will also have students view the video, *I Got the Power*, which explains to students the purpose of and steps involved in the student assessment process, as well as the value of career planning.

Tech Prep awareness night for the eighth-grade students and parents will be conducted by the middle school counselors during the spring. The purpose and programs available to students will be presented to parents along with flyers about the Tech Prep program.

Students in the eighth and ninth grades will complete an interest inventory (paper/pencil) and score the results. Counselors will interpret and discuss the results with each student and help them complete the "High School 4-Year Plan of Work" and make career decisions.

Ninth graders who intend to pursue vocational/technical programs will complete an intent form. The interest inventory scores and vocational-technical program forms will be forwarded to the appropriate vocational-technical center Guidance Support Department.

The eighth/ninth graders completing the Intent Form will go to an area Assessment Center for Part II of the assessment process. The Career and Technical Center (CTC) support staff will assess the students' aptitude and abilities on the APTICOM Assessment instrument and enter their interest inventory assessment score.

APTICOM will generate the APTICOM Report for every student tested on it. The report is a unique personalized printout containing an array of valuable vocational information. The APTICOM Report consists of the following parts: the Aptitude Test Battery Report, the Occupational Interest Inventory Report, the Educational Skills Development Report, and the Vocational Recommendations Report and Legend.

Students' interests, aptitudes, and abilities will be matched and then printed. Copies of individual students' printed assessments will be forwarded to middle or high school guidance departments for additional interpretation, career planning, and vocational education placement.

As a follow up, the Career Technical Education (CTE) support staff/recruitment team will identify potential students needing supplementary resource services.

The high school guidance department will develop a guidance curriculum consisting of classroom and group activities. The curriculum will be organized around three major areas:

1. Career planning and exploration
2. Knowledge of self and others
3. Educational/career technical development

The needs assessment instrument will be used to identify students' greatest needs, and the guidance curriculum will be developed to meet them.

Counselors will teach, team-teach, or assist in teaching the guidance curriculum learning activities in classroom settings. Counselors will plan and teach structured group activities to develop skills and to increase the career knowledge of students.

Counselors will also conduct individual counseling sessions that are designed to help students plan, monitor, and manage their learning, as well as their personal and career development. Students will evaluate their educational, occupational, and personal conflict resolution skills in these sessions.

The following are examples of topics that may be included within individual counseling sessions:

- Decision-making skills
- Study skills
- Substance abuse
- Test-taking skills
- Post-high school planning
- Self-concept
- Career awareness

The activities in this component are

- individual appraisal,
- individual advisement, and
- placement.

Examples of possible topics within this component are

- student portfolios,
- interest inventories,
- course selections,
- job shadowing,
- career awareness,
- college selection,
- financial aid, and
- career/technical selection.

A major emphasis in Tech Prep is on the development of new partnerships between technical and academic faculty, secondary and postsecondary institutions, and educators and business/industry/labor. Counselors have particular expertise in communication skills which can be drawn upon in developing the relationships that are needed to make Tech Prep a successful initiative.

The members of the counselors' partnership are

- teachers,
- business/industry/labor,
- parents, and
- postsecondary institutions.

By forming these partnerships, counselors will encourage each contingent of the Tech Prep program.

Counselors will encourage *teachers* by

- working as agents of change, informing the instructional staff of shifts in the labor market as they affect job demand and also the impact of curricular restructuring on post-high school decision-making.
- providing feedback to teachers on student satisfaction with newly integrated courses which bridge technical and academic content.
- providing relevant background information to teachers to ease student transitions and facilitate student success.
- preparing students for their new style of instruction and the goals it is designed to accomplish.
- providing leadership to teachers in creating developmental guidance curricula.
- promoting a positive, healthy school climate where everyone is valued.
- serving as a team teacher when presenting career development curricula in the classroom.

Counselors will encourage *parents* by

- providing parents with up-to-date information about the changing workforce and the increasing need to better prepare our nation's youth for active and meaningful participation upon graduation.

- via parents, supporting students pursuing nontraditional careers.
- via parents, supporting students choosing options other than the baccalaureate degree and maintaining that these options are equally legitimate.

Counselors will encourage *business/industry/labor partners* by

- networking with community leaders to establish mentoring, cooperative education, internship, and field trip programs.
- staying informed by those "in the field" on the nature of the world of work.

Counselors will encourage *postsecondary institutions* by

- arranging articulation agreements that provide incentives to students to finish high school and pursue additional training.
- remaining informed about degree requirements, admission standards, and enrollment trends, as well as the structure and function of career development programs presented to students.
- arranging campus visits to pique students interest and provide usable information on the nature of postsecondary study.

As a result of these new guidance activities, students will be served with higher quality programs that respond to their needs as they develop and change over time.

MARKETING PLAN

It is the Tech Prep team's contention that major changes must occur in our educational programs to meet the needs of our changing society. This means that a new vision with new information, benefits, and approaches must be marketed to educators, industry, business, students, parents, and the general public to bring about the changes that are needed to facilitate the Integrated Tech Prep Program. Therefore, the following strategies have been devised to create our Comprehensive Marketing Program:

- Develop marketing objectives and goals.
- Develop a Marketing Implementation and Control Plan.

- Develop an Internal and External Marketing Plan:

  1. Form a Marketing Committee.
  2. State program objectives.
  3. Target the appropriate audiences to be reached: students, school staff, parents, employers, and the general public.
  4. Emphasize the Tech Prep benefits particular to the specific groups.
  5. Train teachers and counselors.
  6. Develop a Student Handbook.
  7. Conduct ongoing presentations and meetings within the community.
  8. Include activities held at the community college.
  9. Provide continued articulation among the high school, the career and technical center, and the community college.
  10. Develop a Financial Accounting Plan.
  11. Negotiate agreement and joint planning activities.
  12. Prepare promotional materials/tools.
  13. Develop pamphlets, flyers, brochures, videos, newsletters, and posters with a common logo, consistent color, and positive image.
  14. Organize special presentations, orientation workshops, on-site visits to schools and businesses, and career fairs.
  15. Encourage business and industry participation in job skills identification, student mentoring programs, postgraduation employment, and postsecondary scholarship fund.
  16. Expand audience with press releases, media coverage, and a complete public relations campaign.

Marketing Plan Evaluation

- Develop an evaluation design.
- Devise an assessment system.
- Implement revision where necessary.

PARTNERSHIPS

Partnership is defined by Webster as "the quality or state of being associated." Business and industry partnerships are essential to the educational structure of our society today and for the 21st century. There is a need for business and industry, community-based organizations, parents, and educators at all levels (including postsecondary staff, students, and governmental agencies) to become actively involved within the educational structure of the community. Through these involvements, the gap that separates school and work can be bridged.

Business and industry, community-based organizations, educators, policymakers, parents, and students need to reach consensus on the desired outcomes of the educational process of the Integrated Tech Prep Initiative. These key players also need to work together to create a system that will facilitate these expectations in the most effective manner possible (see Implementation Plan in Appendix C).

There are over 100 businesses that have formed a formal or informal partnership with the three educational institutions that are part of this Integrated Tech Prep Initiative. Specifically, Michigan Bell, AT&T, Barden Cablevision, Chrysler Corporation (Dealer Promotions), and Ford Motor Company have been identified. These businesses can serve as a resource bank to provide qualified individuals who can serve as mentors and support persons for curricular updating, program evaluation, presentations at career days, and judging at competitive events.

The business partners can increase students', parents', and community awareness concerning occupational options and opportunities, current trends and techniques of today's technology, as well as needs anticipated for the future. In addition, the business partners can provide internship experiences for staff and students, job opportunities for students, scholarships, and adjunct teaching in the technical areas where qualified teachers are not available.

We must also understand that the institutions involved in the Integrated Tech Prep Initiative will be able to assist business by providing students with the foundations of knowing how to learn, providing students with related competence skills: reading, writing, and computation. The educational institutions will put greater emphasis on communication skills—listening and oral communication. Students will be provided activities to develop creative thinking and problem-solving skills, personal management skills (e.g., self-esteem, goal setting, motivation, and personal/career development), interpersonal skills, negotiation and teamwork skills, as well as organizational effectiveness and leadership skills.

LOCAL POLICIES

Equal Opportunity

Michigan has a long history of commitment to the education of students with special needs. Written district philosophy and mission statements affirm a collaborative commitment and responsibility to the education of all students in the district. The curriculum of the local school district is based on disciplinary and interdisciplinary learner outcomes which will prepare all students to function effectively in a complex global society.

Entrance into the Tech Prep program is an option for all students. There are no selection criteria that will restrict student entrance into the program. Students use a variety of variables to select a Tech Prep program:

- Interest in a specialized program
- IEPC Development
- Four-Year Plan of Work (defined below)
- Counselor referral
- Parent request
- Enrollment in a Career/Technical Curriculum

Student Recruitment

All stakeholders actively participate in the recruitment process: students, parents, staff, and community. Recruitment begins with the "Four-Year Plan of Work." This plan includes four categories:

Category I	Academic Plan
Category II	Non-Academic Plan
Category III	Career Preparation
Category IV	Recognition and Accomplishments

The integrated Tech Prep Plan links all components of the Four-Year Plan of Work, reduces fragmentation, and supports implementation strategies.

Teacher Certification

An examination of the quantitative and qualitative requirements for teacher certification in Michigan was made by Bill King, State Office of Teacher Preparation and Certification Services in January of 1991. According to King, the "present situation" is a shortage of certified CTE and academic teachers in the state of Michigan. Some specific recommendations were made to the State Board of Education to recognize and make a commitment to correct the teacher shortage.

Personnel teaching in secondary facilities must be certified by state law. Higher education institutions must develop an overall plan to facilitate the preparation and recruitment of candidates into teacher education programs. The teacher shortage could negatively impact Tech Prep Partnership 2000. Given the urgency of the situation, the consortium will host a forum with the Division of Higher Education Institutions to promote the inclusion of Tech Prep in preservice curriculum at the college level. This forum will heighten awareness and encourage commitment from colleges/universities to provide the necessary support to develop competent teacher education graduates over the next five years.

Student Assessment

Partnership 2000 believes that every student has interests, aptitudes, and abilities that schools should identify and reinforce. Presently, students in the district are assessed on these variables beginning at eighth/ninth grade when they complete an interest inventory in their middle or high school classroom. Counselors interpret and discuss interest inventories with students helping them complete the "High School Plan of Work" prior to making career decisions.

Career/Technical guidance staff assess students' aptitudes and abilities on the APTICOM Assessment instrument. Data is compiled, matched, printed and forwarded to students' guidance departments at middle/high schools for additional interpretation, career planning, and placement.

Specialized CTE programs employ a performance-based assessment model utilizing business, industry, labor, and education representatives to evaluate student performances during summative and formative evaluation testing periods.

Counselors and teachers in the Tech Prep Partnership 2000 Consortium are cooperating to deliver a comprehensive guidance program that meets the needs of students in College Prep and Career/Technical programs of study.

School Calendars

The state of Michigan has set specific criteria to determine school district membership and the length of the school year in days and in hours. Every school district in Michigan is subject to audit by the state and/or the intermediate school district in which it is located. It is imperative that every school in the consortium adheres to these regulations. District/school calendars, including evaluation, planning, or inservice, are prepared in concert with union negotiated contracts and must be scheduled so that they do not circumvent either the 900-hour or the 180-day requirements.

Tech Prep Partnership 2000 will comply with all applicable guidelines and will not shorten the day or dismiss staff/students unless authorized by the General Superintendent or his or her designee. Specific calendars for Tech Prep Partnership 2000 meetings and professional development will be shared with appropriate staff for inclusion in the district's master calendar in August 1993.

Secondary/Postsecondary Articulation

The administration and staff of Tech Prep Partnership 2000 firmly believe in the importance of articulation. To that end, the district adopted a policy which forces students to enroll in either Career Technical or College Prep curricula, preparing them for work or work/college (see Appendix D). Collaborative networking has enabled the consortium to articulate secondary and postsecondary programs in 2+2+2 configurations. Tech Prep identified strategies will continue to yield a unified system of delivery for both secondary and postsecondary institutions in Tech Prep Partnership 2000.

Job Placement Services

Job placement services are provided for students who complete reimbursable programs in vocational/technical centers and comprehensive high schools annually. The Tech Prep Placement Support Component will play an active role in ensuring that qualified students are placed accordingly. Annual follow-up surveys will be continued to determine the impact of secondary training on post-high school activities or employment. The most important issue, however, will be to determine whether students used the career-related knowledge gained in secondary school to make career selections after high school. Placement services provide a consistent continuum of career guidance from high school throughout postsecondary levels. Guidance, placement, and learner support personnel are designing articulated programs through collaborative sessions in their respective component committees.

Work Experience

Hands-on applications of classroom and laboratory instruction are provided under the direct scrutiny of employers, in conjunction with the supervision of a teacher coordinator, for students completing the final phase of vocational-technical training in cooperative education (co-op) sites. Career preparation involves practica, internships, work experience, and apprenticeship opportunities for all students in the Tech Prep Partnership 2000 Consortium.

Student Certification

The needs of business and industry have changed drastically in the workplace. In Michigan, compliance with mandates of Public Act 25, North Central Association Outcomes, and the Tech Prep Consortium is being monitored to ensure that all students meet standards for graduation. Local district requirements of 200 credits or 20 Carnegie Units of instruction ensure students leave school with competencies, both work-related and lifelong skills, that they can immediately demonstrate to employers. Additionally, a certification process involving employers' assessment of technical skills is used for completers of specialized programs. Graduates are evaluated on a duty/task configuration and receive certificates of completion based upon competency levels.

Proprietary Schools

Proprietary schools provide an important link to the Tech Prep Partnership 2000 Consortium. Partnership agreements exist with proprietary schools of cosmetology. These schools are state licensed. They provide contractual services on-site and prepare students for examination to receive state license and gain business ownership as entrepreneurs.

BUDGETARY AND FISCAL CONSIDERATIONS

Career/Technical programs receive funds from four primary resources: (1) the federal government, (2) the State Department of Education, (3) local funds, and (4) other sources. During the 1993-1994 school year, traditional sources of revenue will be used to operate Tech Prep programs in the consortium. These resources are readily available through both internal and external sources. The initiative will combine Consortium Tech

Prep Funds (sec. 343); Regional Grant Funds (sec. 201) Part A; and (nonfederal) state and local funds.

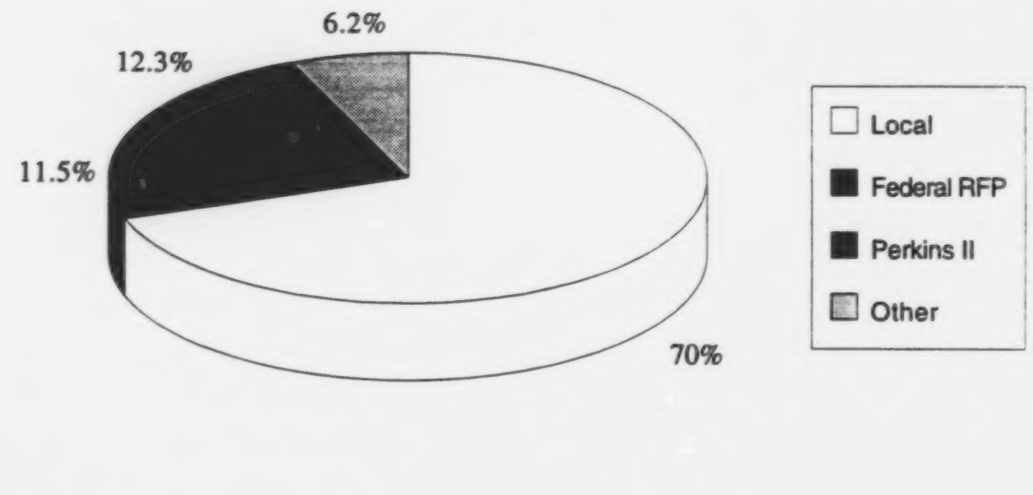
Within the project, funds may be distributed by a variety of different methods: allocation formula, request for proposal (RFP), direct grants, and "other" (the latter includes special monies set aside for incentive awards and interagency service agreements). The allocation of funds across all subjects is as follows:

- Figure 1, *Local ($2,816,651 or 70%)
- Federal RFP ($511,734 or 12.3%)
- Perkins II ($464,938 or 11.5%)
- Other ($250,000 or 6.2%)

The total FY93 allocation is $4,043,323.

*Figure I allocations represent budgeting allowances for Detroit Public Schools. RFP allowances for the consortium also include a distribution of funds for Highland Park Public Schools, Highland Park Community College, Wayne County Community College, Wayne State University, and the University of Detroit-Mercy.

Allocation of Funds
Tech Prep 2000
FY 93



STUDENT ASSESSMENT

Learning and Competency Gains

Secondary

Vocational-technical students will score as well as the state average performance for all students on the MEAP mathematics, reading, and science assessments in tenth and eleventh grade, respectively. Retesting of students in the twelfth grade who fall below the average will demonstrate average or higher than average scores in math, reading, and science.

1995 Measure

The measure of academic achievement or gain will be the requirements under Section 104a, *State Endorsed High School Diploma* for students to be eligible to receive the state endorsed diploma. As an individual student measure, a student who has achieved the requirement for the state endorsed diploma has achieved a sufficient level of academic gain (as defined by the state of Michigan) and thus has met this standard. On an aggregate basis, the standard will be the percentage of career and technical education students meeting a requirement to receive a state endorsed diploma.

Basic Academic Skills Attainment

Postsecondary

The percentage of occupational education students who have completed developmental education courses will exceed the percentage of the cohort established as the benchmark.

Advanced Academic Skills Attainment

Postsecondary

The percentage of occupational education students who have completed general education courses will exceed the percentage of the cohort established as the benchmark.

Data will be collected utilizing ASSETS and APTICOM by the Highland Park Community College Division of Testing. Profile will be provided to divisional counselors.

Competency Attainment or Job/Skill Attainment

Secondary

Seventy percent of all vocational-technical enrollees will complete their programs.

1995 Measure

- Ninety percent of vocational-technical enrollees will complete their programs.
- Vocational-technical students will be assessed using standardized assessments covering foundation skills established by business and industry for all vocational-technical clusters.
- Consumer Home Economics students will be assessed on outcome-based competency tests.

This will be determined through annual follow-up studies.

Attainment of Occupational Work Skills

Postsecondary

The percentage of occupational education students who have completed occupational specialty courses within an occupational program will exceed the percentage of a cohort established as the benchmark.

Educational/Employability Development Plan (E/EDP) Process

Secondary

Fifty percent of all ninth- through twelfth-grade vocational-technical enrollees will participate in an E/EDP.

1995 Measure

One hundred percent of all ninth- through twelfth-grade vocational-technical enrollees will participate in an E/EDP.

Every student in the Detroit Public Schools Educational System is required to complete a "Four-Year Plan of Work."

Special Populations

Secondary

- The percentage of special population students enrolled in vocational-technical programs will be equal to or greater than the percentage of special populations students in the total ninth- through twelfth-grade high school population.
- The percentage of special population students completing vocational-technical programs will be equal to or greater than the percentage of nonspecial populations students completing vocational-technical programs.
- The percentage of special populations students placed will be equal to or greater than the percentage of nonspecial populations students placed.
- 100% of special populations students will have a written rehabilitation plan, educational/employability development plan, or other appropriate educational plan.
- An incentive will be presented to those secondary VTE regions where the percentage of special populations completing VTE programs is greater than the percentage of nonspecial populations completing VTE programs.

1995 Measure

See the five points immediately preceding this section.

Utilization of Assessment Results

Assessment results will be used to determine the academic and occupational skill levels of program students and as an evaluation of program effectiveness.

Task-Based Performance Testing

An analysis of test scores will pinpoint tasks that are not being mastered and specific students who need further assistance. This knowledge can aid the classroom instructor in rethinking learning strategies and sequences to promote greater student mastery of tasks. In some instances, students must be taught to analyze a situation, determine the course of action, then prioritize steps to complete the task. This is very important in a timed performance test. It is the responsibility of the classroom instructor to assign learning activities that provide sufficient practice for acquiring these skills.

Test scores should also be analyzed to compare relationships between tasks mastered by individuals and by student groups. As part of this investigation, an item analysis of the test can pinpoint deficiencies and competencies by task. This data will be critical for developing and revising instruction to meet the needs of the students.

When test results indicate low achievement for a collective group of students, the testing process needs to be examined for flaws. Every effort must be made to eliminate factors which impact negatively on student performance.

Test items with a low achievement rate may indicate problems in the areas of instruction or curriculum development. Alternative strategies and methodologies should be explored to affect positive changes in student achievement and overall program effectiveness.

The aforementioned Plan-Do-Check-Act (PDCA) cycle will be utilized to ensure continuous program improvement.

Authentic Assessment

The Detroit Public Schools Board of Education requires that all learners entering ninth grade begin developing portfolios, using a district adopted format. The student developed portfolio will be carried with the learner as he or she pursues a horizontally and vertically articulated sequence of courses. The postsecondary institutions will encourage the students to regularly update their portfolios.

An integral part of the portfolio which is currently under development by the Michigan Department of Education and ACT will be a series of employability skills criterion-referenced assessment tests. The series of approximately fifteen tests will cover areas such as teamwork, problem solving, and applied academics. The tests will be administered at the secondary and postsecondary levels upon the completion of the program level.

Program Evaluation

The Tech Prep Partnership 2000 Consortium will initially respond to secondary and postsecondary state required standards.

Performance Standards–Retention

Secondary

The retention rate for vocational-technical students will be equal to or greater than the state average retention rate for all high school students.

1995 Measure

The retention rate for vocational-technical students will be equal to or greater than the state average retention rate for all high school students. Evaluation will be based on entry data, district graduation rate, and program completion/noncompletion reports.

Postsecondary

- The percentage of occupational education students who have completed an occupational program will exceed the cohort percentage established as the benchmark.
- The percentage of occupational educational special populations enrolled students who have completed an occupational education program will exceed the cohort percentage established as the benchmark.
- The percentage of occupational educational special populations enrolled students who have completed an occupational educational program will equal or exceed the occupational program completion percentage established as the benchmark.

Data will be collected by Highland Park Community College's Occupational Divisions.

Placement

Secondary

Ninety percent of all program completers of vocational-technical programs will be placed.

1995 Measure

Ninety-five percent of all program completers of vocational-technical programs will be placed. (Evaluation will be provided by Detroit Public Schools).

Placement Services

Postsecondary

The percentage of occupational education program completers seeking employment, additional training/education, or military service will exceed the percentage of a cohort established as the benchmark.

The percentage of occupational education special populations program completers seeking employment who are employed, or in additional training or education, or military service will equal or exceed the cohort percentage established as the benchmark.

Enrollment

The percentage of the total seventh- through twelfth-grade enrollment who participate in a Tech Prep program.

1995 Measure

The percentage of the total seventh- through twelfth-grade enrollment who participate in a Tech Prep program. (This will be determined through enrollment data.)

RETENTION

The consortium needs to address a comprehensive list of state required Tech Prep program/learner outcomes in order to receive Perkins II/Title III - E funds. A list of the state required outcomes (with their present and future status) has been included and coincides with state required standards and measures.

Mathematica Policy Research, Inc. (MPR) is conducting a four-year evaluation of the Tech Prep Education Program for the U.S. Department of Education. The survey will fully describe the Tech Prep programs funded under the Perkins Act, documenting the number of programs involved and their characteristics, the institutions involved, the populations they serve, and their planning and implementation activities. The evaluation will also identify which practices are effective.

The results of this survey and the goals set for the state required outcomes will then be analyzed to determine program status and effectiveness. A continuous program improvement cycle will be used as the need arises.

The Partnership 2000 Consortium has committed to the following summative and formative monitoring and evaluation procedures in order to receive Perkins II/Title III - E funds.

Formative

- Measuring of process outcomes for each program component
- Surveying perceptions of consortium members
- Monitoring of progress in achieving indicated outcomes and activities through verbal and written reports
- Assessing the performance of consortium members through a self-assessment instrument

Summative

- Annual measurement of product outcomes
- Assessment of the components of the restructured curriculum
- Analysis of the Tech Prep database including enrollment, retention, placement, and achievement

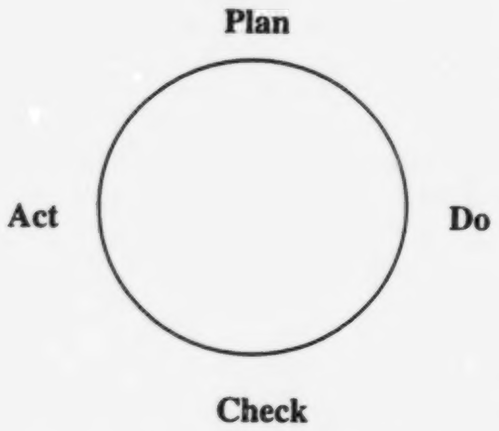
Other

A variety of assessment options are being reviewed by an Ad Hoc committee.

Program Improvement

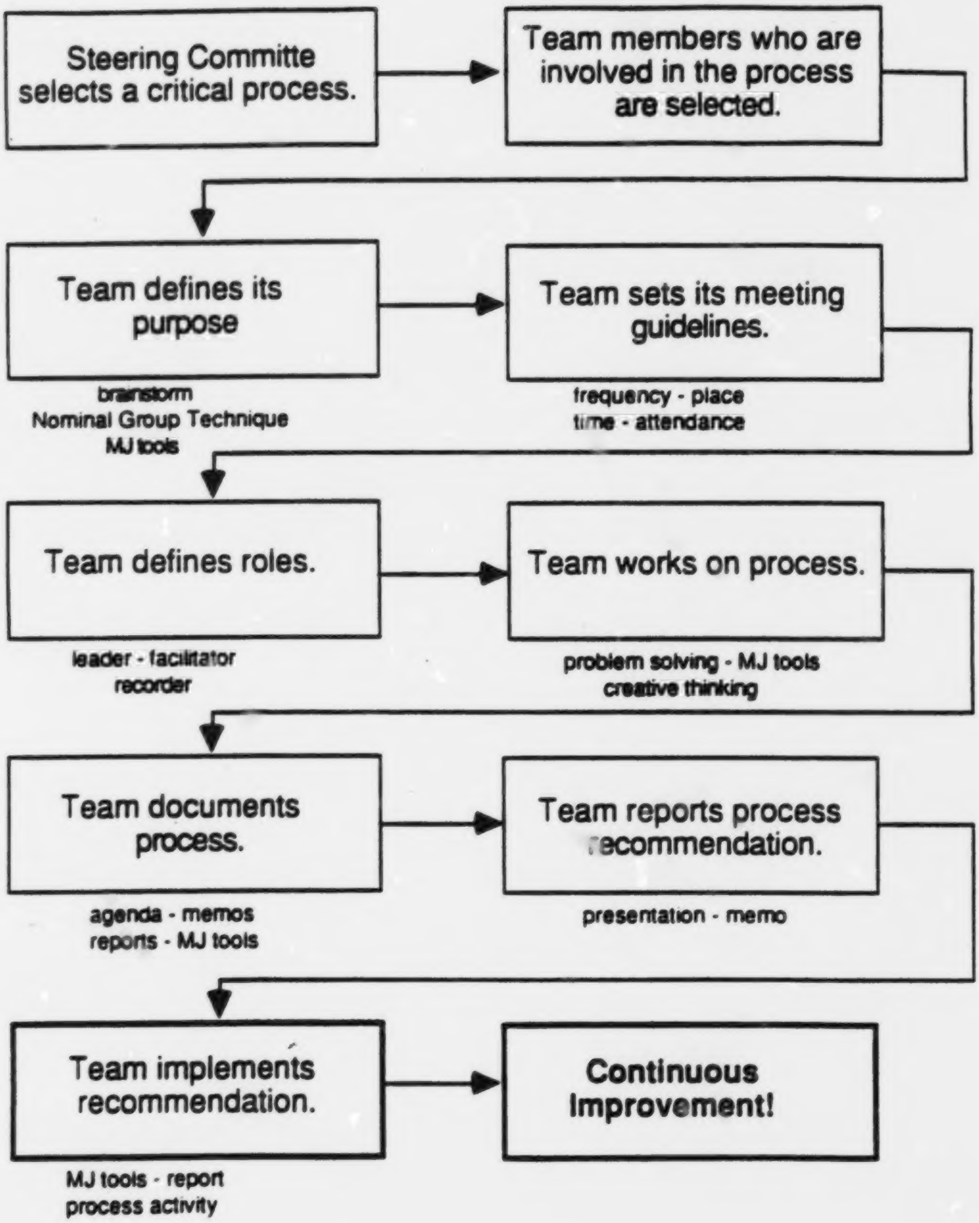
The results of the program evaluation will be used in a continuous program/school improvement cycle. Teams will be utilized to address concerns as they arise (see Basic Flow of Team Activity).

A PDCA Cycle will form the basis for continuous improvement. It represents the four steps necessary in addressing a desired system or process change.



Plan-Do-Check-Act (PDCA) Cycle

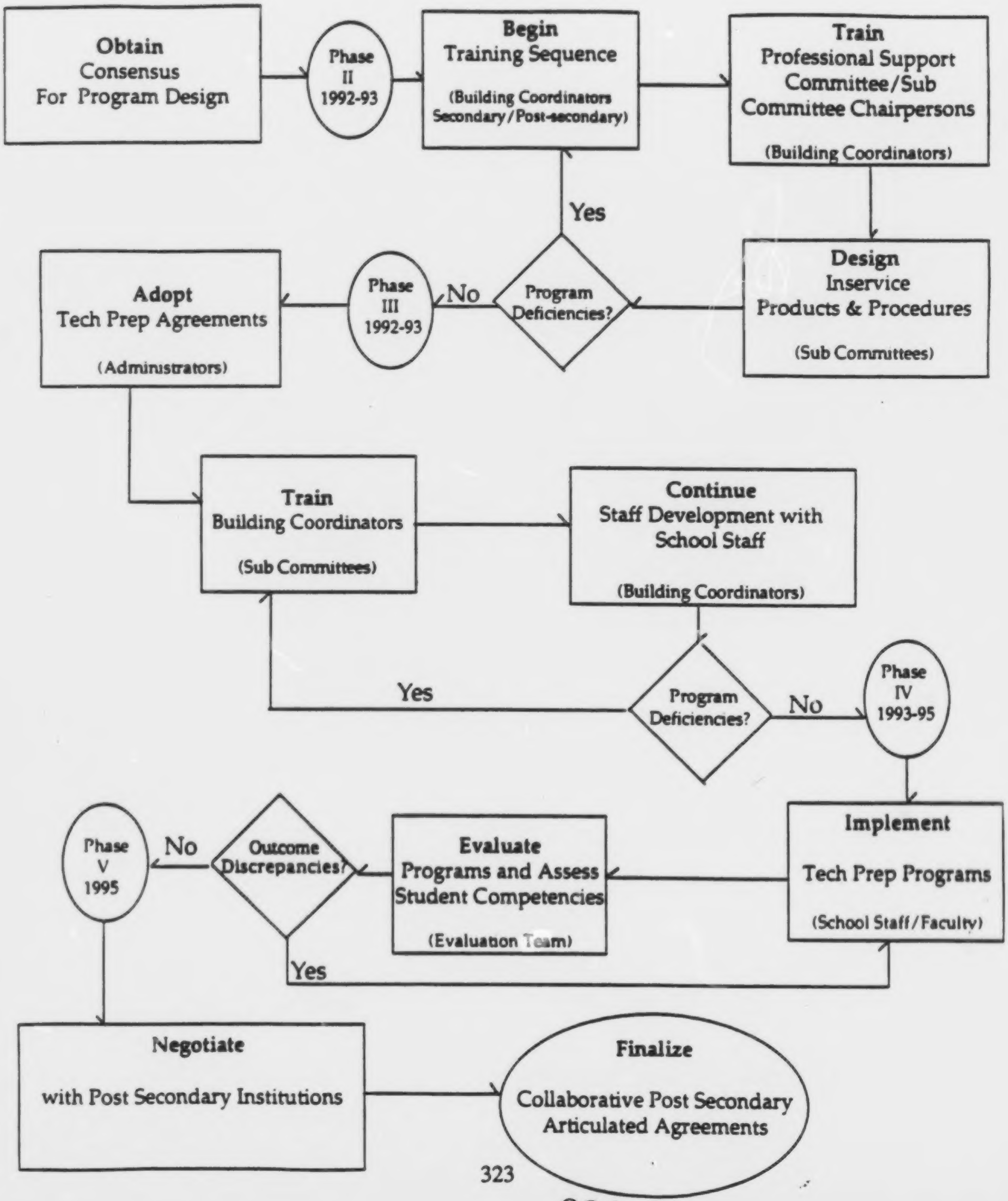
BASIC FLOW OF TEAM ACTIVITY


Steering Committe selects a critical process.
Team members who are involved in the process are selected.
Team defines its purpose
brainstorm
Nominal Group Technique
MJ tools
Team sets its meeting guidelines.
frequency - place
time - attendance
Team defines roles.
leader - facilitator
recorder
Team works on process.
problem solving - MJ tools
creative thinking
Team documents process.
agenda - memos
reports - MJ tools
Team reports process recommendation.
presentation - memo
Team implements recommendation.
MJ tools - report
process activity
Continuous Improvement!

APPENDIX A

PROCEDURES FOR PROGRAM IMPLEMENTATION

Procedures For Program Implementation


Obtain Consensus For Program Design
Phase II 1992-93
Begin Training Sequence (Building Coordinators Secondary/Post-secondary)
Train Professional Support Committee/Sub Committee Chairpersons (Building Coordinators)
Design Inservice Products & Procedures (Sub Committees)
Program Deficiencies?
Yes
No
Phase III 1992-93
Adopt Tech Prep Agreements (Administrators)
Train Building Coordinators (Sub Committees)
Continue Staff Development with School Staff (Building Coordinators)
Program Deficiencies?
Yes
No
Phase IV 1993-95
Implement Tech Prep Programs (School Staff/Faculty)
Evaluate Programs and Assess Student Competencies (Evaluation Team)
Outcome Discrepancies?
Yes
No
Phase V 1995
Negotiate with Post Secondary Institutions
Finalize Collaborative Post Secondary Articulated Agreements

APPENDIX B

PROCEDURES FOR PROGRAM IMPLEMENTATION

TECH PREP PARTNERSHIP 2000

SCOPE OF COMMITMENT

LEVEL	AGREEMENT	SERVICES
1	Orientation	Dissemination of information about the content and process of Integration
2	Planning	Collaborative development of the site plan for implementation of Integration model(s)
3	Developing	Formation of institutional structures and communication channels with delivery systems for site model(s)
4	Training	Presentation of professional development activities required to initiate site model(s)
5	Implementation	Assistance for operation, on-site, of selected integrated programs
6	Evaluation	Assessment of project components to determine effectiveness and provide support for remediation of identified needs
Institutionalization of Tech Prep Curriculum		

TECH PREP AGREEMENT FOR LEVEL SERVICES

________________________________ will participate in the integration of
SCHOOL/COLLEGE

vocational and academic learning during the ____________ school year at level

Please circle Level number(s). (See attachment)

1 - Orientation **2 - Planning**
3 - Developing **4 - Training**
5 - Implementation **6 - Evaluation**

Integration services and activities for selected levels will be provided to this school/college by project staff.

The Integration Coordinator for this school/college is ________________________________
Name

who is the ____
Title/Responsiblitiy

for ____
Program/Department

____
Administrator

____
Project Integration Coordinator

APPENDIX C

PROCEDURES FOR PROGRAM IMPLEMENTATION

TECH PREP IMPLEMENTATION PLAN
PLANNING COMPONENT : BUSINESS/INDUSTRY

Objective or Activity	Responsibility	Coordination	Resources	Timeline
Articulation between Board of Education and Business/Industry Community	General Superintendent Area Superintendent	Advisory Council	Meeting date Agendas Guest Speakers Stakeholders	Ongoing
Establish objectives/criteria for a quality partnership program	Vocational and Career Education Department	Tech Prep Consortium	Meeting dates Agendas	Ongoing
Research geographical area Develop list of potential partners	Vocational and Career Education Department Local School Principal	Tech Prep Consortium	Moody Industrial Index Standard & Poor's Who's Who Business Info	August 1993
Make initial contact with potential partners	Principal	Vocational Career Education Department and Tech Prep Consortium	Letters, telephones, fax machines Office/School visits	August 1993
Schedule meeting Share information Discuss benefits Tour organizations	Principal	Business representative Tech Prep coordinator	Handouts, school info, fact sheets Program descriptions, etc.	September 1993
Develop negotiated agreement	Principal Business representative	Vocational/Career Education Tech Prep Consortium	Proposals Letters of Agreements Contracts Commitments, etc.	September-October 1993
Schedule regular meeting dates for organization, orientation planning, activities calendar, communication network	Principal School Coordinator Committees Business Representative(s)	Vocational/Career Education Tech Prep Consortium Business Representatives	Agendas, calendars Proposals Committee members (Parent groups)	October 1993
Develop monitoring and evaluation procedures	Principal School Coordinator Business Representatives	Vocational/Career Education Tech Prep Consortium	Calendars Proposals Meeting forms	October 1993 and ongoing thereafter
Program Implementation	Principal School Coordinator Business Representatives	Vocational/Career Education Tech Prep Consortium	Program Coordinators Support resources	November thru June 1993-94
Complete annual evaluation and report final recommendations	Principal School Coordinator Business Representatives	Vocational/Career Education Tech Prep Consortium	Monitoring and Evaluation forms Statistical Support	June thru July 1994

SECTION V, PART B
THREE-YEAR CONSORTIUM PLAN
TO ACHIEVE OR INITIATE TECH PREP OUTCOMES 1992-95

CONSORTIUM NAME: ______________________________

INSTRUCTIONS: Examine each of the 31 Tech Prep Outcomes listed below and project when each outcome will be initiated (I) or achieved (A). Circle an "I" or and "A" under the appropriate program year. If not sure, circle "NS".

I. TECH PREP OUTCOMES		PRIOR TO 1992-93	1992-93	1993-94	1994-95
1.	Identification of consortium members, i.e. specification of the number of K-12's, ISD's, and postsecondary institutions.	I A	I [✓ A] NS	I A NS	I A NS
2.	Establishment of Tech Prep vision and philosophy.	I A	I [✓ A] NS	I A NS	I A NS
3.	Establishment of Tech Prep mission, goals, objectives, and activities.	I [✓ A]	I A NS	I A NS	I A NS
2.	Establishment of Tech Prep vision and philosophy.	I A	I [✓ A] NS	I A NS	I A NS
4.	Assessment of consortium needs.	I [✓ A]	I A NS	I A NS	I A NS
5.	Identification of broad occupational areas/clusters to be developed.	I [✓ A]	I A NS	I A NS	I A NS
6.	Establishment of benchmarks and evaluation measures over a three-year period based on project's overall goals.	I A	[✓ I] A NS	I A NS	I A NS
7.	Development of student recruitment/retention system which addresses the following components:	[✓ I] A	I A NS	I [✓ A] NS	I A NS
	a. marketing	I A	[✓ I] A NS	I [✓ A] NS	I A NS
	b. recruitment	I A	[✓ I] A NS	I [✓ A] NS	I A NS
	c. assessment	I A	[✓ I] A NS	I A NS	I [✓ A] NS
	d. placement	[✓ I] A	I A NS	I A NS	I [✓ A] NS
	e. retention	[✓ I] A	I A NS	I A NS	I [✓ A] NS
8.	A plan for providing academic assistance for students unable to meet the Tech Prep entrance criteria.	[✓ I] A	I A NS	I [✓ A] NS	I A NS
9.	Development of consortium-wide strategy for professional and curriculum development (specification of number of teachers, faculty, counselors, and academic advisors to be inserviced).	[✓ I] A	I A NS	I [✓ A] NS	I A NS
10.	Tech Prep components in place.		[✓ I] A NS	I A NS	I A NS
11.	A professional development plan designed to assist academic and technical faculty in understanding applied learning integration and Tech Prep concepts.		I [✓ A] NS	I A NS	I A NS
12.	Completion of curriculum integration and alignment.		[✓ I] A NS	I A NS	I [✓ A] NS
13.	Identification of academic and technical performance standards.		[✓ I] A NS	I A NS	I [✓ A] NS
14.	Development of specialized occupational training or other optional Tech Prep program components.		I [✓ A] NS	I A NS	I A NS
15.	Increased numbers of high schools in the area participating in dual credit and/or advanced standing agreements in the area of advanced technical training.		[✓ I] A NS	I A NS	I [✓ A] NS
16.	A plan to implement Tech Prep throughout the consortium.		I [✓ A] NS	I A NS	I A NS
17.	A clearly defined set of Tech Prep student entrance criteria and a plan for assessing students.		[✓ I] A NS	I A NS	I [✓ A] NS
18.	Identification of academic/applications for integrated academic/technical curricula.		[✓ I] A NS	I A NS	I [✓ A] NS

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I. TECH PREP OUTCOMES		1992-93	1993-94	1994-95
19.	Identification of technical applications for integrated academic and technical curricula.	[✓ I] A NS	I A NS	I A NS
20.	Design and development of integrated curriculum jointly with academic and technical faculty.	[✓ I] A NS	I A NS	I [✓ A] NS
21.	Development of Tech Prep curriculum agreements.	I [✓ A] NS	I A NS	I [✓ A] NS
22.	Tech Prep programs appear on secondary registration information and other counseling information.	[✓ I] A NS	I A NS	I [✓ A] NS
23.	Written information which communicates the Tech Prep sequence to parents and students.	[✓ I] A NS	I A NS	I [✓ A] NS
24.	A secondary "Tech Prep completion credential" that guarantees acceptance into an associate degree program.	[✓ I] A NS	I A NS	I [✓ A] NS
25.	Increased numbers of learners identified in Tech Prep in the secondary schools with decreased numbers in General Education.	[✓ I] A NS	I A NS	I [✓ A] NS
26.	Decreased truancy and drop-out rates at high schools that adopt Tech Prep and increased graduation rates.	I A [✓ NS]	I A NS	I A NS
27.	Increased numbers of learners entering postsecondary institutions with secondary Tech Prep proficiencies and continuing in Tech Prep.	I A [✓ NS]	I A NS	I A NS
28.	Increased numbers of learners achieving the competencies in the Technical Core courses.	I A [✓ NS]	I A NS	I A NS
29.	Increased numbers of learners in Tech Prep completing a two-year associate degree or certificate program.	I A [✓ NS]	I A NS	I A NS
30.	Increased placement of students in jobs, including military service, at the completion of the Tech Prep education program.	I A [✓ NS]	I A NS	I A NS
31.	Significantly higher scores on entering college placement tests for high school graduates who complete a Tech Prep program than for other graduates from local high schools.	I A [✓ NS]	I A NS	I A NS

II Describe below the type of formative and summative monitoring and evaluation which will be used to assess project results.

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APPENDIX D

PROCEDURES FOR PROGRAM IMPLEMENTATION

DETROIT BOARD OF EDUCATION
RESOLUTION
HIGH SCHOOL GRADUATION TRACKS: CAREER AND TECHNICAL AND COLLEGE PREPARATORY

WHEREAS, Detroit Public Schools mission is to be the first urban school district to successfully educate all of its students and that success will be measured by the extent our students are prepared for responsible citizenship, further learning and productive employment in our modern economy;

WHEREAS, this preparation requires that students leave elementary school with the language, mathematical, skills, and self-esteem that will enable and encourage them to succeed; that students leave middle school excelling core academic courses that keep their college and career options open; and that all high students complete a rigorous academic core curriculum which prepares them for a career;

WHEREAS, all post-secondary activities (college, military, job and entrepreneurial experiences) require an academic core and the school-to-work transition skills necessary to participate productively in the world of work;

WHEREAS, students at all levels must receive the support and guidance necessary to attain the foundation which will enable them to upgrade their skills and advance their careers;

WHEREAS; restrictive tracking must not occur at any educational level, and multiple unfocused tracks increase the dropout rate; and

WHEREAS, college preparatory programs and career and technical programs require a common core curriculum which reduces the dropout rate and prepares youth for life;

NOW, THEREFORE BE IT RESOLVED THAT staff be directed to organize the curricula, instruction and organizational structures of all high schools to promote two non-restrictive tracks of college preparatory and career and technical education; and FURTHER, that staff devise and recommend to the Board of Education the necessary structures and conditions to assure all students' access and success in these curricula.

APPENDIX E

PROCEDURES FOR PROGRAM IMPLEMENTATION

TECH PREP/INTEGRATION IMPLEMENTATION TIMELINE
for Mass Media and Mathematics
FY1993

MONTH	TASKS/ACTIVITY	PERSON(S) RESPONSIBLE	PRODUCTS	FUNDING		
				RFP	PERKINS	STATE/LOCAL
September	Organize Steering Committee	Tech Prep Coordinators	Governance Structure	X		
	Organize Component Committee	Steering Committee	Committee Assignments	X		
	Orientate Boards of Education	Component Coordinators	Executive Summary	X		
	Orientate Executive Staff	Tech Prep Coordinators	Executive Summary			X
	Secure Board Approval of Articulation Agreements	Tech Prep Coordinators	Integrated Signed Agreements			X
	Develop Publicity Program • marketing plan • media blitz • promotional material	Marketing Committee	Promotional Material	X		
	Contact and request support for Business/Industry Partnerships	Steering Committee	Partnership Agreement	X		X
	Organize Advisory Committee	Steering Committee	Annual calendar of meetings			X
	Identify Staff	Principal Personnel Department	Certified Staff		X	X

Key

G=Golightly
F=Henry Ford High School
HP=Highland Park Community College

MONTH	TASKS/ACTIVITY	PERSON(S) RESPONSIBLE	PRODUCTS	FUNDING		
				RFP	PERKINS	STATE/LOCAL
October	Orientate building level coordinators using staff development model "Train the Trainers"	Professional Support Committee	Job Descriptions	X		
	Orientate key stakeholders • Administrators (G,F, HP) • Teachers (Mass Media; Mathematics) • Counselors (G,F,HP) • Central /Area Staff • Parents (LSCO) (G,F,HP) • Students (G,F,HP) • Business Reps (G,F,HP) • Postsecondary Staff	Professional Support Committee	Implementation Manual	X	X	X
	Hold Advisory Meetings	Tech Prep Coordinators	Agendas Handouts	X		
	Identify staff training needs via survey/needs assessment	Tech Prep Building Coordinators	Needs Assessment Instrument	X		X
	Identify Technical Service Needs	Component Committees	Meeting "Hotline"	X		X
	Design Evaluation Component	Evaluation Committee	Evaluation Design	X	X	

Key

G=Golightly
F=Henry Ford High School
HP=Highland Park Community College

MONTH	TASKS/ACTIVITY	PERSON(S) RESPONSIBLE	PRODUCTS	FUNDING		
				RFP	PERKINS	STATE/LOCAL
December	Distribute Promotional Packages (end quarter)	Marketing Support Component	Promotional Materials	X		
	Hold Advisory Meeting	Steering Committee	Agendas; Handouts	X		
	Hold Component Meetings	Component Committee Chairpersons	Agendas; Handouts	X		
	Make presentations to local community groups	Marketing Support Component	Press Packets Inservice Model	X		
	Operate "Hotline"	Marketing Support Component	Media Message	X		X
	Hold Student Forum (Mass Media, Mathematics)	Learner Support/ Guidance/Counseling Components	Agendas; Evaluations		X	
	Hold Regional Workshop (Mass Media, Mathematics)	Professional Suppor Component	Agendas; Evaluations	X	X	X
	Design Newletter	Marketing Support Component	Newletter	X		
	Design Student Handbook	Guidance/Counseling Component	Handbook	X		
	Design Administrative Guide	Professional Support Component	Administrative Guide	X		
	Visit pilot sites (G,F,HP)	Component Committees	Monitoring Sheet	X		

Key

G=Golightly
F=Henry Ford High School
HP=Highland Park Community College

This is a one semester Implementation Plan for Mass Media/Mathematics at Henry Ford High School, Golightly Career/Technical Center and Highland Park Community College.

MONTH	TASKS/ACTIVITY	PERSON(S) RESPONSIBLE	PRODUCTS	FUNDING		
				RFP	PERKINS	STATE/LOCAL
November	Internal/External Marketing • Present plan at Curriculum Board Meeting	Component Committee Chairpersons	Board Representatives			X
	Hold Open House	Marketing Support Component	Promotional materials evaluations	X		X
	Hold Advisory Meeting	Steering Committee	Agendas; Handouts	X		
	Identify new course needs • Curricular (Mass Media; Mathematics) • Equipment (Mass Media; Mathematics)	Technical Core/Applied Academics Component	Equipment lists Curriculum Revisions	X	X	X
	Begin Curriculum Alignment (Mass Media; Mathematics)	Technical Core/Applied Academics Component	Scope and sequence chart	X		X
	Develop couse(s) of study (sequence/articulated) (Mass Media; Mathematics)	Guidance/Counseling Technical Core/Applied Academics Component	Transformation/ Restructuring Guide		X	X
	Prepare Quarterly Report	Evaluation Component	Quarterly Report	X		
	Hold LSCO Inservice	Community Support Component	Agendas; Evaluations	X		
	Hold Regional Workshop (Mass Media; Mathematics, G,F,HP: Staff)	Professional Support Component	Agendas; Evaluations	X		X
	Begin Implementation (Mass Media; Mathematics, G,F,HP)	Learner Support, Applied Academics, Technical Core and Community Support Component	Teacher Strategies Student Activities Evaluation Measures	X	X	X

Key

G=Golightly
F=Henry Ford High School
HP=Highland Park Community College

CAPITOL HILL HIGH SCHOOL
OKLAHOMA CITY PUBLIC SCHOOLS
OKLAHOMA CITY BRANCH
OKLAHOMA STATE UNIVERSITY
METRO AREA VOCATIONAL-TECHNICAL SCHOOLS

OKLAHOMA CITY, OKLAHOMA

Planning Document Developed at the NCRVE 1993 National Institute:
"Establishing Integrated Tech Prep Programs in Urban Schools"*
July 14-23, 1993

MEMBERS OF THE TECH PREP TEAM

From the Project SOAR Consortium:

- Susan Arn, Math Teacher, Capitol Hill High School, Oklahoma City Public Schools
- Don Connel, Division Head, General Studies, Oklahoma State University, Oklahoma City Branch and Director, Project SOAR Consortium
- Dr. Jim Davidson, Department Head, Mathematics, Oklahoma State University, Oklahoma City Branch
- Lisa Dillon, Assessment Specialist/Counselor, Oklahoma State University, Oklahoma City Branch
- Barbara Gravitt, Assistant Principal, Capitol Hill High School, Oklahoma City Public Schools
- Ken Groth, Tech Prep Coordinator, Metro Tech
- Harold Jones, HVAC Instructor, South Bryant Campus, Metro Tech
- Mary O'Connell, Special Populations Coordinator, Oklahoma City Public Schools
- Linda Thompson, State Tech Prep Coordinator/Oklahoma Department of Vocational-Technical Education
- Dr. Danene Vincent, Director, Instructional and Career Services, Metro Tech

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* This is a working paper. It has not been reviewed by either the NCRVE or the educational institutions/agencies where the authors are employed. Therefore, this paper represents the views of the authors only.

- Dr. Neal Willison, Division Head, Engineering, Oklahoma State University, Oklahoma City Branch

Key Players

Students

- Leaders of vocational student organizations
- Student Council/Government representatives
- Academic student organization representatives

Parents

- Parents of SOAR students
- Parents and Teachers Association (PTA) groups
- Booster clubs
- Band parents

Community and Civic Leaders

- Churches
- Chambers of Commerce
- Civic organizations (e.g., Lions, Kiwanis, and Masons)
- Professional organizations

Community-Based Organizations

- Social Service Agencies
- Department of Human Services
- Employment agencies
- Job Training Partnership Act/Private Industry Council (JTPA/PIC)
- Mayor's Summer Youth Council

Other Key Players

Oklahoma State University–Oklahoma City Branch

- OSU Board of Regents
- Dr. James Hooper, Provost and Vice-President
- Dr. Jerrilee Mosier, Vice-Provost
- Don Welch, Department Head, Industrial Drafting/Architecture/Construction Technology
- Phil Condreay, Heating/Ventilation/Air Conditioning (HVAC) Assistant Professor
- Roger Haraughty, Electronics Assistant Professor
- Mark Ames, Director of Counseling and Assessment

Metro Area Vocational-Technical School District

- Board of Education
- Dr. Kara Gae Wilson, Superintendent
- Andy Dement, Assistant Superintendent
- Bill McDonald, Electronics Teacher, South Bryant Campus
- Steve Strong, Computer-Aided Drafting (CAD) Teacher, South Bryant Campus
- Bob Jardee, Director, Aviation Career Center
- Kay Hamilton, Computer Science Teacher, Computer and Office Center

Oklahoma City Public Schools

- Board of Education
- Dr. Betty G. Mason, Superintendent
- Dr. Gloria Griffin, Director of High Schools
- Dr. Hawthorne Faison, Director of Curriculum Services
- Dr. Annette Murphy, Director of Guidance and Counseling Services
- Dr. Bill Hartman, Vocational Director
- Susan Johnson, Vocational Supervisor

- Gary Gleaves, Vocational Supervisor
- School administrators and counselors
- Applied Academics teachers

Crooked Oak Public Schools

- Board of Education
- Dr. Kathy Roberts, Superintendent
- Al Nichols, Principal
- Katherine Storey, Counselor
- Applied Academics teachers

Millwood Public Schools

- Board of Education
- Dr. Leon Edd, Superintendent
- Elton Matthews, Assistant Superintendent
- Applied Academics teachers

Representatives from other high schools in Oklahoma City and UCO, OSU

Oklahoma Department of Vocational Technical Education

Oklahoma State Department of Education

Oklahoma State Regents for Higher Education

DESCRIPTION OF TEAM'S CURRENT PROGRAMS

Our Tech Prep consortium, Project SOAR (Success Opportunities through Articulated Resources), has been in place to serve the inner Oklahoma City area for two years. The purpose of the consortium is to provide opportunities for students not pursuing a college-bound curricular track to enter a 4+2+2 program and receive applied academic and quality workplace training.

By State Board of Vocational-Technical Education regulation, Tech Prep projects in Oklahoma must involve the area vocational-technical school, the comprehensive high school feeder districts, and one or more institutions of higher education. Project SOAR was established as a Carl Perkins Title III project involving multiple school districts and institutions of higher education in the Oklahoma City area, including Metro Area Vocational-Technical School District #22, Metro Tech, Oklahoma City Public School District (seven high schools involved), Millwood Public School District, Crooked Oak Public School District, Oklahoma State University–Oklahoma City Branch (OSU-OKC), the University of Central Oklahoma, and Oklahoma State University–Stillwater.

A great deal of planning, team meetings, and inservice education has gone into the project during the last two years. Prior to signing the agreement, the Chief Executive Officers of all member institutions were inserviced, and they agreed to the critical nature of the project. Following notification of grant funding, inservice activities have been provided on a regular basis to administrators, vocational and academic teachers, counselors, and business/industry representatives.

Project SOAR served over 700 Tech Prep students through applied academics programs in the 1992-1993 school year.

The Project SOAR Consortium Team Members ranked themselves at an average 3.13 level on the NCRVE Institute Planning Guide scale, indicating that the project falls within the Development and Initial Implementation stages.

Strengths of Project SOAR

- Funds have been provided for program planning and implementation.
- Well-developed prevocational career education and preparatory services are in place.
- Strong leadership exists for implementation.
- Commitment has been obtained from relevant agencies and key players.
- Frequent communication exists among consortium members.
- Consortium members are innovative and enthusiastic.
- The consortium has developed strong marketing/public relations materials.
- Students have been exposed to other classes such as academic students visiting vocational classes and vocational students visiting postsecondary campuses.

Weaknesses and Barriers to Project SOAR

- The approval of applied academic courses for college entrance credit was not finalized prior to the piloting of these courses.
- Class sizes in many of the applied courses are much larger than the sizes suggested in the curriculum.
- Inservicing teachers and counselors has been difficult due to scheduling conflicts or, in limited cases, unwillingness to attend.
- Counselors have had difficulty sequencing courses due to high student turnover. In some instances, students from the lower quartile have been inappropriately placed in applied academic courses.
- Many educational leaders have been slow to respond to the Tech Prep initiative because of its origin from vocational education. There is much skepticism as to whether or not this initiative will survive to become "real" reform.
- Many teachers fall back on traditional teaching methods when they are uncomfortable with new materials and equipment. This further emphasizes the need for enhanced training.
- The program lacks a good evaluation plan.
- Applied courses are not truly integrated.
- Inservicing staff members of all systems has not occurred.

- The consortium committee structure has not worked well and needs revision. A broader implementation committee is needed to provide better structure and buy-in.
- Developing a successful strategy for involving parents has proven to be a challenge.
- Upgrading materials and equipment has been costly. Many schools lack basic lab equipment and storage facilities.

The weaknesses of and barriers to implementation of Project SOAR will be addressed both directly and indirectly in the short-term goals and implementation plans.

TECH PREP PHILOSOPHY

Reasons for Undertaking an Integrated Tech Prep Program

Today's employers are looking for skilled workers who are dependable, cooperative, productive, and efficient. Employees must be able to work in teams, think critically, make decisions, read, write, calculate, and communicate. Tech Prep teaches the skills that will be needed in a majority of the high-tech jobs of the future. Specifically, the Project SOAR Consortium was formed to

- address the problem of students not going to college nor having the skills to obtain employment following high school graduation;
- help students reach ultimate goals through maximization of their unique potentials; and
- develop a qualified workforce in order to improve the local economy and diversify the economic base.

The program is open and available to any student who has the skills, abilities, and desire to participate. The primary target groups are those students who score between the 25th and the 75th percentile on a standardized test or who have been identified as at-risk of not completing high school.

The Purpose of the Program

Tech Prep is a combined secondary and postsecondary program that

- leads to an associate degree or two-year certificate;
- provides technical preparation in at least one field in engineering technology, applied science, mechanical, industrial, or practical art or trade;
- builds student competence in mathematics, science, and communication (including applied academics) through a sequential course of study; and
- leads to employment and continuing education.

Tech Prep is a program of studies designed to provide a more technically oriented educational background for high school students. Through the integration of higher-level vocational and academic courses, Tech Prep prepares students for the advanced courses required at the postsecondary level.

Tech Prep gives students options and lifelong alternatives. The Tech Prep option gives students what they need to be employable and to continue their education after high school graduation. Tech Prep encourages mastery in both academic coursework and technical education.

DEFINING TERMS

The following terms are critical to understanding this plan:

Vocational Skills

What the individual must know and be able to do to be prepared for employment in a given occupation or occupational cluster.

Integration

The blending of occupational and academic competencies through creative delivery methodologies and active student participation.

Tech Prep

A challenging program of studies at the secondary and postsecondary levels that prepares students with strong technical and academic foundations so that they may enter the technically sophisticated workforce.

All Aspects of the Industry

Strong experience in, and understanding of, all areas of the industry the students are preparing to enter, including planning, management, finance, technical and production skills, underlying principles of technology, labor issues, and health and safety.

Locality Skills

Local businesses and industries have validated the need for workers to possess the competencies outlined in the SCANS report.

Other terms needing definition and clarification include the following:

Advanced Placement

Programs that are time-shortened and eliminate course redundancy. Advanced Placement is often granted when courses are waived at the postsecondary level.

Advanced Standing

A process through which a student may be eligible to receive credit for all or part of a course due to competencies mastered previously.

Applied Academics

Courses that focus on subject-matter concepts as they are related to real-world problem solving and workplace applications.

Articulation

A process for coordinating the linking of two or more educational systems within a community to help students make a smooth transition from one level to another, without experiencing delays, duplication of courses, or loss of credit.

Authentic Assessment

Forms of student assessment, other than traditional multiple-choice formats, including student portfolios and senior projects.

Career Cluster

A grouping of specific occupational titles that have like or similar characteristics relating to student interests, abilities, and values.

Career Development

A lifelong process by which individuals come to understand themselves, the world of work, and their respective role in it.

Career Infusion

Teaching career concepts as an integral part of the vocational and academic curricula at all levels.

Concurrent Enrollment

A secondary student enrolled in a college course while still in high school.

Cooperative Enrollment

An adult student enrolled in a vocational program at an area vocational-technical school and receiving college credit for the vocational program.

Sequential Course Of Study

An integrated series of courses that are directly related to the educational and occupational skills preparation of individuals for jobs or preparation for postsecondary education.

Tech Prep Student

For state and federal reporting purposes, a Tech Prep student is any vocational student beginning at the eleventh- or twelfth-grade level who meets all of the following criteria:

- Is enrolled in an articulated vocational program, with a solid academic foundation in applied academics (math, science, and communications) or the equivalent (e.g., *not* general math).
- Has a Tech Prep Career Plan of Study.
- Has made a statement of intent as a Tech Prep student.

For local purposes, Tech Prep students also include all of those students enrolled in applied academics in the consortium schools.

DESIRED STUDENT OUTCOMES

- Student attendance for all Tech Prep students will be at least 90% average daily attendance.
- Tech Prep students will increase standardized achievement test scores by 5%.
- Eighty percent of all students enrolled in applied academic classes will receive a grade of "C" or better in the courses.
- One hundred percent of all eighth-grade students will receive information about Tech Prep.
- One hundred percent of Tech Prep students will have on file with the counseling office a proposed plan of study addressing an appropriate sequence of courses to graduation and postsecondary education.
- Fifty percent of all Tech Prep students will show improvement in self-esteem through survey results.
- Enrollment by Tech Prep students in advanced classes will increase by 50%.
- Fifty percent of all students will have had an inservice on the use of the Oklahoma Career Search and the Career Resource Lab.

- The number of Tech Prep students will increase by 50% by the 1994-1995 school year.

- Enrollments in Tech Prep will reflect the demographic profile of the building site/district.

- Students in Tech Prep vocational-technical programs will score 75% on competency attainment tests in one or more occupational areas prior to completion of the secondary and postsecondary levels.

- Students in Tech Prep vocational programs will demonstrate a mean 60% modified gain score in vocational and academic competencies.

- The number of students participating in work-based learning experiences will be increased during the school year.

- Tech Prep students enrolling in articulated postsecondary education will increase (Note: Not measurable until School Year 1993-1994).

STRUCTURE OF THE INTEGRATED TECH PREP PROGRAM

The program will focus initially on two broad clusters: Engineering and Business and Computer Technology.

Engineering Cluster

- Heating/Ventilation/Air Conditioning and Electrical Controls
- Aviation Maintenance
    1. Airframe and Powerplant Technology
    2. Avionics
- Electronics
- Computer-Aided Drafting

Business and Computer Technology Cluster

- Computer Programming
- Accounting

SHORT- AND LONG-TERM GOALS

By the end of the 1993-1994 school year, the Project SOAR Consortium will have accomplished the following short-term goals:

- Increased the awareness of the purposes and benefits of Tech Prep among Boards of Education/Regents, administrators, counselors, teachers, students, parents, and the community.
- Increased the number of applied academics courses offered within the consortium with appropriate materials and equipment.
- Developed cluster model six-year plans of study for each high school district within the consortium.
- Increased enrollment in applied academics courses.
- Assessed all eighth-grade students with an interest, aptitude, and ability inventory.
- Established an Oklahoma City Public Schools database based on student interest, aptitude, ability, and assessment results.
- Increased the number of business and industry representatives actively participating in the Tech Prep program.
- Begun implementation of curriculum alignment at an Oklahoma City pilot site.
- Assured that integration of basic and academic skills is occurring in the vocational programs.
- Increased communications between and among faculty from postsecondary and secondary institutions within articulated programs.
- Increased communication among applied academic faculty from postsecondary and secondary institutions.
- Coordinated with guidance counselors and other special services to assure that members of special populations and at-risk students are provided access to the Tech Prep program.
- Developed a plan for continuation of Project SOAR.

- Revised the current Tech Prep Committee structure to include a broader Implementation Committee with a multiple subcommittee structure. The following seven subcommittees will be included:

  1. Curriculum Integration Subcommittee
  2. Curriculum Articulation Subcommittee
  3. Staff Development Subcommittee (teachers, counselors, administrators/ boards, business/industry, parents)
  4. Partnerships
  5. Marketing (internal/external)
  6. Student Planning (assessment, awareness, and so on)
  7. Program Evaluation

The long-term goals of the Project SOAR Consortium are as follows:

- To develop a secondary/postsecondary articulation process and a vocational/ academic curriculum that will assure quality workplace and academic training to employers and higher education admissions officers.
- To make applied academic classes available to every student in the consortium.
- To develop an education/career plan for each student served by the consortium starting at the eighth-grade level.
- To incorporate increased work-based learning experiences so students have the opportunity to learn from a real-world work environment.
- To integrate basic and advanced academic concepts into each Tech Prep curriculum.
- To assure access and appropriate placement to the Tech Prep program for at-risk, disadvantaged, and handicapped students.

SECONDARY/POSTSECONDARY ARTICULATION

An agreement has been signed for direct articulation from Metro Tech into the following programs at OSU-OKC: Avionics, Air Frame/Powerplant Mechanics, Electronics, Heating/Ventilation/Air Conditioning, Computer-Aided Drafting, and Computer Programming and Accounting. The articulation agreement encompasses all courses included in the Cooperative Agreement and will be automatically modified when changes are made to the Cooperative Agreement. A graduate of a secondary program must complete twelve credit hours at OSU-OKC with a grade of "C" or better in each course before the college credit is posted to the student transcript by Advanced Standing credit.

WRITTEN AGREEMENTS

A Cooperative Agreement between Metro Area Vocational-Technical School and Oklahoma State University-Oklahoma City Branch has been agreed upon and has been submitted for approval by local and state boards in the program areas listed in the previous section. An agreement of participation has been signed by the Chief Executive Officers of each participating institution in the Project SOAR consortium.

PARTNERSHIPS

The partnerships that can and should be established in the Project SOAR Consortium are multidimensional in nature. We believe that the partners should include representatives from

- public school districts (K-12);
- vocational school district;
- higher education institutions;
- business, industry, and labor;
- community agencies;
- community-based organizations;
- civic organizations;
- vocational student organizations;
- parents;
- mass media;
- other local, state, and federal agencies; and
- foundations.

In general, the partners can play a variety of roles to benefit the Tech Prep project. Examples of such activities include

- provide student internships, faculty externships, and mentorships;
- provide tours;
- become guest speakers;
- provide staff development support;
- provide student scholarships;
- serve on advisory committees;
- become corporate sponsors;
- donate supplies and equipment;
- perform curriculum validation;
- coordinate services;
- provide marketing and public relations;
- employ graduates;
- serve as volunteers;
- provide access to resources;
- coordinate an integrated curriculum; and
- share information about educational programs available.

BUSINESS/INDUSTRY COLLABORATION

The Project SOAR Consortium believes in the critical nature of strong collaboration among the Tech Prep program participants and business/industry/labor. Short-term goals for School Year 1993-1994 focus on building these relationships.

The primary responsibility for initiating and maintaining the business/industry collaboration will rest with the Partnership Subcommittee of the Implementation Committee.

The incentives or benefits that will be offered to business and industry for their collaboration include

- a better prepared workforce, leading to increased productivity/profit,
- development of standards of performance,
- greater input to education,
- customized training services,
- joint use of facilities, and
- alignment of supply/demand.

ARTICULATED CURRICULUM/CURRICULUM DEVELOPMENT

As mentioned previously, the Project SOAR Consortium is composed of several programs comprising the following two career clusters: (1) Engineering Technology and (2) Business Technology. The programs will address "all aspects of the industry" by assuring that the sequenced course of study and integrated curriculum exposes students to broad aspects of the industry. This will be accomplished in a variety of ways, including activities such as

- business/industry collaboration;
- integration of vocational and academic concepts;
- unduplicated, sequential course of study;
- innovative teaching methods;
- outvisits (field trips);
- internships/cooperative work experience;
- guest speakers; and
- career development processes within a particular career cluster.

With regard to vertical articulation, the consortium needs to address the following questions in future plans and goals:

- What basic skills do students need to enter the secondary vocational programs?

- What entering skills do students need to succeed in the postsecondary programs?
- What basic academic skills and minimal technical skills do students need to enter specific occupations at both secondary and postsecondary levels?
- What skills do students need to enter high school?

With regard to horizontal articulation, the consortium needs to develop plans to address the following:

- Aligning students so that they are participating in all Tech Prep academic classes.
- Scheduling classes so that teachers can have joint planning periods.

Other needs/activities were identified to address improved integration of vocational and academic competencies:

- Team teaching
- Integrated reading and writing
- Integrated applications in academic courses
- Career exploration through applied programs
- Senior projects
- Resource persons, representing vocational education, postsecondary education, and business/industry, to come talk to students
- Meeting/planning among vocational and academic teachers
- Academy concept
- Learning activities (LAPs) for vocational and academic teacher use that fit or address the required student learner outcomes (e.g., PEAK materials, math skills incorporated in biology, and chemistry)

GUIDANCE AND COUNSELING

Career awareness is provided through applied academics, Career Resource Centers, State Department and locally developed materials, and field experiences.

Assessment of interest, aptitude, and ability testing (CAPS, COPS, and COPES) is performed at the eighth-grade level. Vocational aptitude testing (MESA) is provided, where appropriate, at the tenth-grade level. Subject-specific and precollege assessment/testing (ASSETT and ACT) is provided at the twelfth-grade level.

Education/career planning will be accomplished by using teams representing consortium participants to develop six-year plans for eighth graders, four-year plans for tenth graders, and two-year plans for twelfth graders.

Transition and placement services will be provided. These will include student services such as preparing job applications and résumés, applying for financial aid, gaining job interviewing skills; and learning business etiquette (workplace readiness skills). Transition services will include business/industry connections (networking), youth apprenticeships, apprenticeships, mentorships, and internships.

MARKETING THE PROGRAM

A comprehensive mass marketing plan is under development at the state level. Many marketing and public relations activities have been conducted at the local level, but consortium members realize that a number of market groups have not been comprehensively reached. Areas that have been identified for further development include

- the methods to market the Tech Prep concept to secondary students and their parents;
- the need to develop methods for disseminating information regarding the articulation agreement to parents, students, school staff members, and the community; and
- methods to obtain greater involvement from business and industry.

Specific strategies will be addressed in our Implementation Workshops.

AT-RISK/SPECIAL POPULATIONS

We define At-Risk/Special Populations as

- economically disadvantaged students;
- academically disadvantaged students;
- single parents, displaced homemakers, and single pregnant women;
- limited-English proficient students;
- students with disabilities;
- incarcerated/adjudicated youth;
- underachieving students—those not performing at their maximum potential; and
- students at risk of dropping out of school for any of the above reasons.

Our efforts to meet the needs of At-Risk/Special Populations include providing the following:

- Special populations coordinator
- Interpreters for hearing/impaired students
- English as a Second Language (ESL) programs
- Emerson Alternative Center for at-risk youth, including pregnant teens
- SAGE program for at-risk youth
- BEST program for AFDC recipients
- Nontraditional Careers (Sex Equity)
- Summer vocational programs for youth
- Displaced Homemaker/Single Parent/Single Pregnant Teen program
- Project SOAR Tech Prep Consortium
- ASSET testing
    - Tutorial
    - Financial aid
    - Personal counseling
    - Academic placement

- Vocational rehabilitation counseling
- School-based counselors
- "Making the Grade" (Business and industry sponsored)
- "Twilight Semester" (Late Afternoon integrated vocational/academic program)
- "Workplace Readiness Skills" course in lieu of social studies requirement

In order to ensure access and appropriate placement, we need to address the following:

- Information and awareness
- Early assessment
- Transportation, child care, and other needs
- Access to community resources for food and other necessities
- Remediation services
- Personal management skills
- Workplace readiness skills
- Computer Curriculum Coordination (CCC)/ESL component
- ESL support
- Coordination with community (funding) agencies and sources

LOCAL POLICIES

Local policies may affect our plans in the following areas:

- *Equal Opportunity Issues*

  Local policies will dictate that the target populations for Tech Prep focus on assuring equal access.
- *Student Recruitment*

  Must focus on equal opportunity policies of consortium institutions.

- *Teacher Certification*

  1. Applied academic teachers must be certified in their subject areas.

  2. Integrated courses must have a certified teacher in the subject area if academic credit is to be awarded.

  3. Integrated courses taught by a teacher certified in only one area may restrict the credit that can be awarded.

- *School Calendars*

  The school calendars in the consortium are not coordinated. Therefore, scheduling inservices and joint meetings of consortium participants is a concern.

- *Student Selection Criteria*

  Student selection criteria for the Tech Prep program is uniform throughout the consortium and is not perceived as a barrier.

- *Secondary/Postsecondary Articulation*

  The articulation agreements must meet the requirements for both secondary and higher education boards who function independently from one another. Policies, therefore, may not be uniform.

- *Job Placement Services*

  Job placement services are available through the Job Development Services Division of the Instructional and Career Services Department at Metro Tech.

- *Assessment*

  A coordinated career assessment plan for all eighth-grade students is in place and scheduled for implementation during the 1993-1994 school year.

- *Work Experiences*

  Personal liability, availability of transportation, and union policy issues may hinder opportunities for student work experiences.

- *Proprietary Schools*

  There are no proprietary schools in the SOAR Consortium.

STAFF DEVELOPMENT

In order to be successful, our staff development activities must discuss and disseminate the following information:

- Applied/integrated methods
- Learning styles (for secondary and postsecondary)
- Learning resource centers
- Tech Prep for counselors
- Four-year plan of study/sequencing of courses for counselors and teachers
- Parental involvement as related to Tech Prep
- Using applied communications materials

The vehicle for delivering this information is staff development and inservice education activities designed for teachers, administrators, counselors, and School Board members. The types of activities to be delivered include

- presentations to Boards of Education and Boards of Regents on the Tech Prep concept;
- workplace exchanges between faculty and business/industry representatives;
- team building activities among teachers, counselors, and administrators;
- industry work experiences for teachers during the summer months;
- organizational and management skills training for teachers and counselors;
- safety training for teachers who use hazardous materials and chemicals;
- training for counselors and teachers to include conducting and using career assessments, developing and using four-year plans of study, sequencing courses by career cluster, and using career resource centers;
- training for secondary and postsecondary teachers to include addressing learning style needs, integrating vocational and academic education concepts, using teaching methodologies that address a blended curriculum, working with special needs students, and managing a culturally diverse classroom; and
- training for all participants on techniques of marketing a Tech Prep program to specific populations.

PROGRAM EVALUATION

A comprehensive program evaluation model will be developed during the 1993-1994 school year and will be revised annually thereafter. The program evaluation will tie back to student outcomes and program short- and long-term goals, and will include both quantitative and qualitative evaluation methodologies as appropriate to the specific program goal or student outcome.

Research materials available from NCRVE, Mathematica, and the Oklahoma Department of Vocational-Technical Education will be used to develop the model.

STUDENT ASSESSMENT

The prevocational assessment activities are addressed under the Guidance and Counseling section of this plan.

Student performance assessment will be directed toward the accomplishment of state student learner outcomes in academic programs and standards of performance in vocational programs. Student competency gains and competency attainment are also assessed.

BUDGETARY AND FISCAL CONSIDERATIONS

Certain ongoing resources must be present in order for the program to be viable and successful. Funds must be available for a Project Coordinator and for the following:

- Travel for coordinator
- Travel for team to NCRVE at Berkeley and two regional NCRVE meetings
- Purchase of replacement supplies and equipment for continuation of applied academics
- Continuing inservice for staff

Financial resources currently available include

- limited funds from Title II-Carl Perkins,
- local institution funds,
- state Vo-Tech funds, and
- Title III grant funds for project continuation.

To secure additional resources which are necessary for continuation, we will

- pursue grant proposals—private, state, and federal sources;
- garner business and industry resource support;
- request that boards and administrators include Tech Prep support in their budgets;
- seek scholarships for Tech Prep students; and
- write proposals for minigrants for summer projects.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Oklahoma City Public Schools
Oklahoma State University
Capitol Hill High School
Metro Tech

Planning Component: Guidance and Counseling

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To raise awareness about Tech Prep using • career clusters, • career activities for academic courses K-12; • field trips (outvisits to business/industry coordinated by counselor); • career resource centers for learning more about careers (computer-based video or visuals); • awareness of educational options, vocational and postsecondary by counselors and academics; • postsecondary admissions policies in testing; (continued next page)	School year 1993-1994	Counselors (vocational and academic) Parents Teachers (vocational and academic) Business/Industry Community organizations Churches Media Students Librarians	Administrators (secondary and postsecondary) Bus Drivers Politicians	Career Resource Materials (printed, visual, and computer) Transportation Equipment Business/Industry Experts	• Increase the awareness of various audiences of Tech Prep. • Increase the number of applied academics offered. • Assess interests, aptitudes, and values of all 8th-grade students. • Increase the number of business/industry representatives actively participating in Tech Prep. • Increase the number of parents participating in Tech Prep.	Survey audiences Curriculum handbook Media reports Results of assessment kept on all assessed students Numbers of business/industry persons attending meetings and responding to media Number of parents responding to media Evaluation forms on scheduled meetings

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Oklahoma City Public Schools
Oklahoma State University
Capitol Hill High School
Metro Tech

Planning Component: Guidance and Counseling (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
(cont.) • speakers (community, parents, business/industry, counselors, teachers, parent volunteers, church members); • media (public relations, TV, radio, bulletins); • Applied Academics (teachers, counselors, former students); • business/industry externships (targeting counselors, teachers, parents); • Career Days (church-sponsored); • Youth Group vocational-related activities; and • Assessments (COPS, CAPS, COPES, Asset).	School year 1993-1994	Counselors (vocational and academic) Parents Teachers (vocational and academic) Business/Industry Community organizations Churches Media Students Librarians	Administrators (secondary and postsecondary) Bus Drivers Politicians	Career Resource Materials (printed, visual, and computer) Transportation Equipment Business/Industry Experts	• Increase the awareness of various audiences of Tech Prep. • Increase the number of applied academics offered. • Assess interests, aptitudes, and values of all 8th-grade students. • Increase the number of business/industry representatives actively participating in Tech Prep. • Increase the number of parents participating in Tech Prep.	Survey audiences Curriculum handbook Media reports Results of assessment kept on all assessed students Numbers of business/industry persons attending meetings and responding to media Number of parents responding to media Evaluation forms on scheduled meetings

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Oklahoma City Public Schools
Oklahoma State University
Capitol Hill High School
Metro Tech

Planning Component: Communications/Structure

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
General Tech Prep informational meeting	By October 15, 1993	Staff Development Committee and a representative from each participating site	Attendance of teachers, counselors, CEOs, and administrators	Funds for drinks and goodies Audio and video equipment Printed materials on Project SOAR	Increased communications between and among faculty from secondary and postsecondary institutions	Form—evaluation of general Tech Prep information meeting
Restructuring of the Implementation Committee and development of subcommittees from Implementation Committee	By September 15, 1993	Don Connell, Project Director, and Ken Groth, Tech Prep Coordinator	Committee members from all institutions, and representatives from the community, parents, and business/ industry	Materials for meetings and reimbursement for local travel	• Improved coordination and communication among committee members • Accomplishment of short-term goals (fiscal year 1994) through effective subcommittee structure	• Qualitative input from committee members • Accomplishment of fiscal year 1994 short-term goals

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Oklahoma City Public Schools
Oklahoma State University
Capitol Hill High School
Metro Tech
All vocational sites, middle schools, and local high schools

Planning Component: Marketing

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Tech Prep Night: To increase awareness of Tech Prep for 8th-grade students and their parents.	By the end of February 1994	Counselors, Applied Academic teachers, vocational teachers, administrators, students, and postsecondary faculty	Tech Prep Club, Churches, and PTA	Members of Implementation Team and local school administration	To increase enrollment in Tech Prep classes.	Increased enrollment in applied classes
Tech Prep Club: To raise awareness of Tech Prep by forming a Tech Prep Club.	By the end of the first semester, 1993-1994	Applied Academics teachers and administrators	Student Council, other vocational clubs, Applied Academic students	Student Council advisor, business and industry (money)	To get 20 students actively involved in Tech Prep Club.	Number of students in the club and a written constitution
Tech Prep Student of the Month: To raise awareness of Tech Prep by recognizing a Tech Prep Student of the Month.	Selection committee and display areas in place by September 15 (high schools and vo-tech)	Vo-Tech teachers, Applied Academic teachers, Vocational counselors, and principals	Business/industry for awards; Student nominations	Display area, photographer, and prizes (awards)	Raise awareness level and prestige level of Tech Prep.	Total numbers in program (long-term) and random survey of general student body awareness of Tech Prep (to be developed)

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Oklahoma City Public Schools
Oklahoma State University
Capitol Hill High School
Metro Tech

Planning Component: Integration of Vocational and Academic Competencies

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Review duty/task lists, student objectives, lesson plans, and instructional materials.	By November 30, 1993	Administrative and curriculum areas; secondary and postsecondary vocational teachers	Academic teachers, secondary and postsecondary	To be determined.	To assure that students are receiving integrated and reinforced academic competencies appropriate to the occupation(s) through the vocational delivery system.	Qualitative examination (review) of student objectives, duty task lists, lesson plans and instructional materials, and quantitative academic gain scores
Incorporate additional integrated academic concepts where needed in vocational curricula.	By May 1, 1993	Administrative and curriculum areas; secondary and postsecondary vocational teachers	Academic teachers, secondary and postsecondary	To be determined.	To assure that students are receiving integrated and reinforced academic competencies appropriate to the occupation(s) through the vocational delivery system.	Qualitative examination (review) of student objectives, duty task lists, lesson plans and instructional materials, and quantitative academic gain scores

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Oklahoma City Public Schools
Oklahoma State University
Capitol Hill High School
Metro Tech

Planning Component: Vertical Articulation

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Determine skills needed to enter vocational programs.	1993-1994 school year	Administrative and curriculum areas; secondary vocational teachers	Academic teachers	Vocational Advisory Committees State Student Learner Outcomes	To ensure that students have academic skills needed for success in vocational programs.	Pretest/posttest gains assessment and measures of competency attainment
Determine skills needed to enter postsecondary programs.	1993-1994 school year	Administrative and curriculum areas; postsecondary vocational teachers	Secondary vocational and academic teachers	Vocational Advisory Committees State Student Learner Outcomes College admission requirements Regents of Higher Education policies	To ensure that students have vocational and academic skills needed for success in vocational programs.	Pretest/posttest gains assessment and measures of competency attainment
Determine basic academic skills and minimal technical skills needed to enter specific occupations at both the secondary and postsecondary levels.	1993-1994 school year	Administrative and curriculum areas; secondary and postsecondary vocational teachers	As needed.	Business and industry representatives Trade Association representatives Occupational Standards	To ensure that students have vocational and academic skills needed for success in the workplace.	Employer follow-up surveys, graduate surveys, licensure/ certification test results, job placement rates

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Oklahoma City Public Schools
Oklahoma State University
Capitol Hill High School
Metro Tech

Planning Component: Horizontal Articulation

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Align Tech Prep students so they may participate in all integrated academic classes.	1994-1995 school year	Secondary schedule builders	Vocational and academic teachers	Assistance from Tech Prep Coordinator, integrated curriculum materials, and staff development	To provide a truly integrated, aligned course sequence to students.	Student surveys; schedule changes reflecting the integrated sequence of courses
Schedule classes to allow for teacher joint planning periods.	1994-1995 school year	Secondary schedule builders	Vocational and academic teachers	Assistance from Tech Prep Coordinator, integrated curriculum materials, and staff development	To provide a truly integrated, aligned course sequence to students.	Schedule changes reflecting the joint planning periods; teacher participation and responses to surveys

SANDERSON HIGH SCHOOL
WAKE COUNTY PUBLIC SCHOOL SYSTEM
WAKE TECHNICAL COMMUNITY COLLEGE
RALEIGH, NORTH CAROLINA

Planning Document Developed at the NCRVE 1993 National Institute:
"Establishing Integrated Tech Prep Programs in Urban Schools"[*]
July 14-23, 1993

BACKGROUND INFORMATION

The Wake County Community

Wake County is an emerging high technology/service/information community consisting of a variety of research centers having unique workforce demands. Wake County's demographics reflect great diversity and wide extremes. On one hand, high unemployment, low-paying jobs, and low per-capita income are indicative of the traditional cycle of poverty. On the other hand, there are pockets of affluence—full employment, high rates of employment in upper/middle-level management, high per-capita income, and high educational attainment. Wake County is known worldwide for the Research Triangle Park, a highly advanced technological research and development center. Many of the companies located here require employees with highly sophisticated technical/vocational skills.

The Wake County Public School System currently serves over 70,000 students, grades Kindergarten-12, in 91 schools. The enrollment for 1992-1993 in grades nine through twelve is approximately 18,000 students (69.5% White, 27.1% African American, and 3.3% other). Students identified as members of special populations compose 24.3% of the enrollment. Increasingly, foreign students entering our secondary schools have little or no formal educational experience.

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[*] This is a working paper. It has not been reviewed by either the NCRVE or the educational institutions/agencies where the authors are employed. Therefore, this paper represents the views of the authors only.

Wake Technical Community College's population reflects the diversity of Wake County. The college presently serves more than 7,000 students through certificate, diploma, associate degree, and college transfer programs. Program specialties include engineering, health and human services, industrial technology, and business management. Because of demands for services, the technical college is building a second site to serve residents in the northern part of Wake County.

DESCRIPTION OF THE COLLEGE-TECH PREP TEAM

The following people from the NCRVE Summer Institute form the College-Tech Prep planning team that is leading the initiative:

Wake County Public School System

- Annette Watson, Program Coordinator, Tech Prep

Sanderson High School

- Diana Di Ferdinando, English Teacher
- Frances Snipes, Business Teacher
- Douglas Adams, Communications Systems Teacher
- M. C. Teitelbaum, Social Studies Teacher
- Carolyn Davis, Guidance Counselor

Wake Technical Community College

- Dr. Larry Roberson, Dean of Evening Programs
- Robert Grove, Engineering Technology
- Alfred E. Williams, Computer Information Technology
- Michael R. Soloway, Architectural Technology Department
- J. Perry Monds, Vocational/Educational Counselor

North Carolina Vocational/Technical Education Department

- Willie Randolph, Consultant, Accountability and Support Services

Other key members of the planning team in Raleigh, North Carolina, have supported the efforts of the members noted above.

Wake County Public School System

- Dr. Robert Wentz, Superintendent
- William McNeal, Associate Superintendent for Secondary Education
- Dr. Julia Mobley, Director of Vocational Education
- Toni Lanier, Program Specialist for the School-Business Partnership

Sanderson High School

- Jane S. Currin, Principal
- Arnold Barrett, Chairman of Vocational Education

Wake Technical Community College

- Dr. Bruce I. Howell, President
- Dr. Carl Price, Executive Vice-President
- Dr. Vince Revels, Vice-President, Curriculum Education Services

PHILOSOPHY STATEMENT

The College-Tech Prep initiative is founded on a philosophy that it is our responsibility to prepare students to become self-reliant, well-rounded, and productive in an ever-changing world. We believe the following:

- All people can learn.
- Learning is a lifelong process.
- Education is a shared responsibility of the student, home, school, and community.

- Expectations affect achievement.
- Everyone has worth and dignity and deserves respect.
- A safe and comfortable school environment enhances learning.
- Our democracy cannot thrive without an educated citizenry.
- Every student has the right to a quality education.

MISSION STATEMENT

The mission of the College-Tech Prep Program at Sanderson High School and Wake Technical Community College is to prepare more students with the vocational/ technical and academic skills required to be productive citizens. We will do this by

- establishing high expectations for all students in both vocational and academic/ technical programs;
- identifying a correlation between career planning and the development of attributes essential to success in school and the workforce;
- emphasizing the development of focused courses of study leading to specific educational/career goals;
- focusing on the development of a strong academic foundation in the areas of communications, math, and science. This foundation prepares students to adapt to changing technological demands of the work environment;
- assessing student progress on a continuous basis;
- providing for curriculum improvement, organizational change, and community involvement; and
- enhancing the relationship between the secondary and postsecondary institutions to promote the integration of vocational and academic education.

STUDENT OUTCOMES

The College-Tech Prep Program will lead to the following student outcomes:

- Students will build and strengthen their self-esteem as a result of their participation in the College-Tech Prep Program.

- Students will improve their academic performance through the integration and articulation of vocational and academic programs.
- Students will acquire workplace skills through an applied academic curriculum. These skills will include problem-solving, critical thinking, team-building, and communication.
- Students will gain an enhanced understanding of the workplace skills needed for the 21st century. They will be able to align their talents and abilities with those competencies necessary to be competitive in the future work world.

GOALS FOR THE COLLEGE-TECH PREP PROGRAM

In the area of student achievement,

- all students will have a career plan that focuses on the identification of a career cluster and a career outcome. We will increase the number of students, grades nine through twelve, enrolled in a focused course of study to 100%.
- all students will participate in articulated programs leading to postsecondary opportunities. We will increase the number of students pursuing articulated postsecondary education and training.
- all students will participate in comprehensive career development and experience activities for grades seven through fourteen. We will increase the number of such activities offered.
- we will increase the percentage of students demonstrating (through end-of-course testing) mastery of grade-level curriculum, including Algebra I and II; Geometry; and social studies, science, and English courses.
- we will reduce the high school dropout rate.
- we will reduce the attrition rate among credential-seeking students at the community college.
- we will increase the number of students enrolled in an integrated vocational/academic program.
- we will reduce the percentage of students needing remediation at the college level.

In the area of College-Tech Prep Program development, we plan to

- develop and maintain support for and ownership of the College-Tech Prep Program among the Sanderson and Wake Tech faculty.

- develop effective marketing strategies that promote College-Tech Prep Program support in the Wake County community.
- create more opportunities for vocational and academic teachers to develop integrated curriculum and team teaching.
- create more joint staff development activities involving the secondary and postsecondary programs relative to integrated education.
- create opportunities for partnerships among the school, home, business/industry, and community agencies to support the College-Tech Prep initiative.

STRUCTURE OF THE COLLEGE-TECH PREP PROGRAM

The College-Tech Prep Program at Sanderson High School will encompass the following career clusters:

1. Engineering Technology
2. Industrial Technology
3. Business Management
4. Human/Social Services
5. Liberal Arts
6. Environmental and Life Sciences
7. Marketing Management
8. Medical/Health Professions

Students will identify and pursue a focused course of study in one of these eight career clusters. The College-Tech Prep Program will be for all students at Sanderson High School and will involve all faculty members.

Currently Sanderson High School has focused program and course development on the first five clusters. Courses are in place within these clusters, and the remaining are in the process of development (see Curriculum Development section). The other three clusters will be phased in after the first five clusters are in place.

The course sequence for each of the eight clusters, as developed by the Wake County College-Tech Prep Consortium, is outlined on the following pages. The sequence includes articulation with the programs of study at Wake Technical Community College appropriate to that career cluster.

SUGGESTED COURSE OF STUDY FOR HIGH SCHOOL STUDENTS

COLLEGE/TECH PREP - ENGINEERING TECHNOLOGY*

NINTH GRADE	**TENTH GRADE**
English	English
Pre-Algebra, Algebra I, Geometry, or Algebra II	Algebra IA, Algebra IB, Algebra I, Geometry or Algebra II
Physical Science, Biology, Earth Science or Chemistry	Physical Science, Biology, or Chemistry
Economic/Legal/Political Systems	World Civilizations
Healthful Living	Healthful Living
Electives: Introduction to Computers Computer Applications Keyboarding I Select from course offerings in Mathematics or Science	Electives: Principles of Technology Electronics I Agriculture Engineering Technology I Aerospace I Select from course offerings in Mathematics or Science

ELEVENTH GRADE	**TWELFTH GRADE**
English	English
Algebra 1B, Technical Mathematics, Algebra II, or Algebra III/Trigonometry	Geometry, Algebra II, Algebra III/Trigonometry, Introduction to College Mathematics
Earth Science, Chemistry or Physics	Chemistry or Physics
Electives: Electronics I/II Principles of Technology I Agriculture Engineering Technology I/II Aerospace I/II Select from course offerings in Mathematics or Science	Electives: Principles of Technology II Electronics II/III Agriculture Engineering Technology II/III Small Business Entrepreneurship Select from other course offerings in Mathematics or Science

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* For a description of each course listed refer to the *Course Description Guide, Grades 9-12, 1993-94, Wake County Public School System.*

COLLEGE/TECH PREP–HUMAN/SOCIAL SERVICES
POSTSECONDARY EDUCATION PROGRAMS

ONE-YEAR DIPLOMA PROGRAMS
(Offered at technical community colleges such as Wake Technical Community College)

Electrical Installation and Maintenance
Electronic Servicing

TWO-YEAR ASSOCIATE DEGREE PROGRAMS
(Offered at technical community colleges such as Wake Technical Community College)

Automation/Robotic Technology
Chemical Engineering Technology
Computer Engineering Technology
Civil Engineering Technology
Electronics Engineering Technology
Manufacturing Engineering Technology
Mechanical Engineering Technology

FOUR-YEAR BACHELOR DEGREE PROGRAMS
(Offered at four-year colleges and universities)

Aerospace Engineering
Chemical Engineering
Civil Engineering
Computer Engineering
Computer Science
Electrical Engineering
Mechanical Engineering
Nuclear Engineering
Materials Science and Engineering

NOTE: **Students are encouraged to consult with their counselors/advisors to assure that**

- courses selected meet minimum requirements for high school graduation and college/ university entry.
- they select a concentration of electives from English, Mathematics, Science, Social Studies, Foreign Language, the Arts, Vocational Education, Computer Education and Health/Physical Education which will enhance their personal and career objectives.

SUGGESTED COURSE OF STUDY FOR HIGH SCHOOL STUDENTS

COLLEGE/TECH PREP - ENVIRONMENTAL/LIFE SCIENCES*

NINTH GRADE	TENTH GRADE
English	English
Pre-Algebra, Algebra I, Geometry or Algebra II	Algebra IA, Algebra IB, Algebra I, Geometry or Algebra II
Physical Science, Biology, Earth Science, or Chemistry	Physical Science, Biology, or Chemistry
Economic/Legal/Political Systems	World Civilizations
Healthful Living	Healthful Living
Electives: Introduction to Agriculture and Natural Resources Horticulture I Keyboarding I Computer Applications Select from course offerings in Mathematics, Science, Social Studies or Art	Electives: Horticulture I Agriculture Production and Management I Agriculture Engineering Technology I Natural Resources Management I Select from course offerings in Mathematics, Science, Social Studies or Art, etc.
ELEVENTH GRADE	**TWELFTH GRADE**
English	English
Algebra 1B, Technical Mathematics, Algebra II or Algebra III/Trigonometry	Geometry, Algebra II, Algebra III/Trigonometry, Introduction to College Mathematics
Earth Science, Chemistry or Physics	Chemistry or Physics
United States History	
Electives: Agriculture Engineering Technology I/II Agriculture Production and Management I/II Horticulture I/II Natural Resources Management I/II Agriculture Cooperative Training I Agriscience Principles of Technology Select from course offerings in Mathematics, Science, Social Studies or Art, etc.	Electives: Principles of Technology Agriculture Engineering Technology II/III Agriculture Production and Management II/III Horticulture II/III Natural Resources Management II/III Agriculture Cooperative Training II/III Agriscience Small Business Entrepreneurship Select from other course offerings in Mathematics or Science

* For a description of each course listed refer to the *Course Description Guide, Grades 9-12, 1993-94, Wake County Public School System.*

MONTH	TASKS/ACTIVITY	PERSON(S) RESPONSIBLE	PRODUCTS	FUNDING		
				RFPI	PERKINS	STATE/LOCAL
December	Distribute Promotional Packages (end quarter)	Marketing Support Component	Promotional Materials	X		
	Hold Advisory Meeting	Steering Committee	Agendas; Handouts	X		
	Hold Component Meetings	Component Committee Chairpersons	Agendas; Handouts	X		
	Make presentations to local community groups	Marketing Support Component	Press Packets Inservice Model	X		
	Operate "Hotline"	Marketing Support Component	Media Message	X		X
	Hold Student Forum (Mass Media, Mathematics)	Learner Support/ Guidance/Counseling Components	Agendas; Evaluations		X	
	Hold Regional Workshop (Mass Media, Mathematics)	Professional Suppor Component	Agendas; Evaluations	X	X	X
	Design Newletter	Marketing Support Component	Newletter	X		
	Design Student Handbook	Guidance/Counseling Component	Handbook	X		
	Design Administrative Guide	Professional Support Component	Administrative Guide	X		
	Visit pilot sites (G,F,HP)	Component Committees	Monitoring Sheet	X		

Key

G=Golightly
F=Henry Ford High School
HP=Highland Park Community College

This is a one semester Implementation Plan for Mass Media/Mathematics at Henry Ford High School, Golightly Career/Technical Center and Highland Park Community College.

SUGGESTED COURSE OF STUDY FOR HIGH SCHOOL STUDENTS

COLLEGE/TECH PREP - HUMAN/SOCIAL SERVICES*

NINTH GRADE English Pre-Algebra, Algebra I, Geometry or Algebra II Physical Science, Biology, Earth Science, or Chemistry Economic/Legal/Political Systems Healthful Living Electives: Teen Living Keyboarding I Computer Applications Introduction to Computers Select from course offerings in Mathematics, Science, Social Studies or Art	**TENTH GRADE** English Algebra IA, Algebra IB, Algebra I, Geometry or Algebra II Physical Science, Biology, or Chemistry World Civilizations Healthful Living Electives: Parenting/Child Development Foods and Nutrition I Interior Design and Housing I/II Clothing Textiles I/II Clothing/Fashion Design I/II Nutrition for Athletes Computer Applications Select from course offerings in Mathematics, Science, Social Studies or Art, etc.
ELEVENTH GRADE English Algebra 1B, Technical Mathematics, Algebra II or Algebra III/Trigonometry Earth Science, Chemistry or Physics United States History Electives: Parenting/Child Development Child Care Service I Foods and Nutrition I/II Nutrition for Athletes Commercial Foods I Interior Designs and Housing I/II Clothing/Textiles I/II Custom Fashions/Interiors I Clothing and Fashion Design I/II Advanced Fashion and Clothing Construction Select from course offerings in Mathematics, Science, Social Studies or Art, etc.	**TWELFTH GRADE** English Geometry, Algebra II, Algebra III/Trigonometry, Introduction to College Mathematics Chemistry or Physics Electives: Independent Living Adult Care Services Parenting/Child Development Child Care Service I/II Foods and Nutrition I/II Nutrition for Athletes Commercial Foods I/II Interior Design and Housing I/II Clothing/Textiles I/II Custom Fashions/Interiors I/II Clothing and Fashion Design I/II Advanced Fashion and Clothing Construction I/II Home Economics Cooperative Education Select from other course offering in Mathematics or Science

* For a description of each course listed refer to the *Course Description Guide, Grades 9-12, 1993-94, Wake County Public School System.*

COLLEGE/TECH PREP–ENVIRONMENTAL/LIFE SCIENCES POSTSECONDARY EDUCATION PROGRAMS

ONE-YEAR DIPLOMA PROGRAMS

(Offered at technical community colleges such as Wake Technical Community College)

Child Care Worker
Home Health Aide

TWO-YEAR ASSOCIATE DEGREE PROGRAMS

(Offered at technical community colleges such as Wake Technical Community College)

Culinary Technology
Food Services Management
Early Childhood Associate
Human Services Technology

FOUR-YEAR BACHELOR DEGREE PROGRAMS

(Offered at four-year colleges or universities)

Home Economics Teacher Education
Leisure Studies and Recreation Administration
Child Development
Early Childhood Education
Family Life Education
Textile Chemistry
Textiles
Textiles and Apparel Management
Food Science
Social Work
Interior Design
Clothing and Fashion Merchandising
Foods and Nutrition

NOTE: Students are encouraged to consult with their counselors/advisors to assure that

- courses selected meet minimum requirements for high school graduation and college/university entry.
- they select a concentration of electives from English, Mathematics, Science, Social Studies, Foreign Language, the Arts, Vocational Education, Computer Education and Health/Physical Education which will enhance their personal and career objectives.

SUGGESTED COURSE OF STUDY FOR HIGH SCHOOL STUDENTS

COLLEGE/TECH PREP - INDUSTRIAL TECHNOLOGY*

NINTH GRADE	TENTH GRADE
English	English
Pre-Algebra, Algebra I, Geometry or Algebra II	Algebra IA, Algebra IB, Algebra I, Geometry or Algebra II
Physical Science, Biology, Earth Science, or Chemistry	Physical Science, Biology, or Chemistry
Economic/Legal/Political Systems	World Civilizations
Healthful Living	Healthful Living
Electives: Introduction to Trade and Industrial Education Keyboarding I Computer Applications Select from course offerings in Mathematics, Science or Art	Electives: Principles of Technology I Automotive Technology I Introduction of Trade and Industrial Education Technical Drafting Graphic and Industrial Cooperative Training I Select from course offerings in Mathematics, Science or Art
ELEVENTH GRADE	**TWELFTH GRADE**
English	English
Algebra 1B, Technical Mathematics, Algebra II or Algebra III/Trigonometry	Geometry, Algebra II, Algebra III/Trigonometry, Introduction to College Mathematics
Earth Science, Chemistry or Physics	Chemistry or Physics
United States History	
Electives: Principles of Technology I/II Industrial Cooperative Training I/II Automotive Technology I/II Architectural Drafting I Technical Drafting I/II Graphics and Industrial Communications I/II Small Business Entrepreneurship Select from course offerings in Mathematics or Science.	Electives: Principles of Technology II Industrial Cooperative Training II/III Automotive Technology II/III Architectural Drafting II Technical Drafting I/II Graphics and Industrial Communications II/III Small Business Entrepreneurship Select from other course offerings in Mathematics or Science

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* For a description of each course listed refer to the *Course Description Guide, Grades 9-12, 1993-94, Wake County Public School System.*

SUGGESTED COURSE OF STUDY FOR HIGH SCHOOL STUDENTS

COLLEGE/TECH PREP - MARKETING MANAGEMENT*

NINTH GRADE	TENTH GRADE
English	English
Pre-Algebra, Algebra I, Geometry or Algebra II	Algebra IA, Algebra IB, Algebra I, Geometry or Algebra II
Physical Science, Biology, Earth Science, or Chemistry	Physical Science, Biology, or Chemistry
Economic/Legal/Political Systems	World Civilizations
Healthful Living	Healthful Living
Electives:	Electives:
Introduction to Computers	Fashion Merchandising
Keyboarding I	Marketing Management (Non-Cooperative)
Computer Applications	Advertising/Sales Promotion
Principles of Business	Computerized Accounting
Keyboarding/Personal Typewriting	Select from course offerings in Mathematics, Science or Art
Select from course offerings in Mathematics, Science or Art	

ELEVENTH GRADE	TWELFTH GRADE
English	English
Algebra 1B, Technical Mathematics, Algebra II or Algebra III/Trigonometry	Geometry, Algebra II, Algebra III/Trigonometry, Introduction to College Mathematics
Earth Science, Chemistry or Physics	Chemistry or Physics
United States History	
Electives:	Electives:
Marketing (Cooperative)	Marketing (Cooperative)
Marketing Management (Non-Cooperative)	Marketing Management (Cooperative
Fashion Merchandising	Marketing Management (Non-Cooperative)
Advertising/Sales Promotion	Fashion Merchandising
Strategic Marketing	Advertising/Sales Promotion
Business Law	Strategic Marketing
Small Business Entrepreneurship	Internal Marketing and Finance
Select from course offerings in English Mathematics or Social Studies, Art, etc.	Tourism Marketing
	Select from course offerings in English Mathematics or Social Studies, Art, etc.

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* For a description of each course listed refer to the *Course Description Guide, Grades 9-12, 1993-94, Wake County Public School System.*

COLLEGE/TECH PREP–ENGINEERING TECHNOLOGY POSTSECONDARY EDUCATION PROGRAMS

ONE-YEAR DIPLOMA PROGRAMS

(Offered at technical community colleges such as Wake Technical Community College)

General Office (Technical Specialty)

TWO-YEAR ASSOCIATE DEGREE PROGRAMS

(Offered at technical community colleges such as Wake Technical Community College)

Accounting
Business Administration
Hotel-Restaurant Management
Food Service Management

FOUR-YEAR BACHELOR DEGREE PROGRAMS

(Offered at four-year colleges or universities)

Marketing Education for Teachers
Economics
Parks, Recreation and Tourism Management
Business Management
Business Administration
Fashion Merchandising

NOTE: Students are encouraged to consult with their counselors/advisors to assure that

- courses selected meet minimum requirements for high school graduation and college/university entry.
- they select a concentration of electives from English, Mathematics, Science, Social Studies, Foreign Language, the Arts, Vocational Education, Computer Education and Health/Physical Education which will enhance their personal and career objectives.

SUGGESTED COURSE OF STUDY FOR HIGH SCHOOL STUDENTS

COLLEGE/TECH PREP - MEDICAL/HEALTH PROFESSIONS*

NINTH GRADE	TENTH GRADE
English	English
Pre-Algebra, Algebra I, Geometry or Algebra II	Algebra IA, Algebra IB, Algebra I, Geometry or Algebra II
Physical Science, Biology, Earth Science, or Chemistry	Physical Science, Biology, or Chemistry
Economic/Legal/Political Systems	World Civilizations
Healthful Living	Healthful Living
Electives: Introduction to Computers Keyboarding I Computer Applications Keyboarding/Personal Typewriting Select from course offerings in Mathematics, Science , Social Studies and Home Economics, etc.	Electives: Introduction To Health Occupations Foods and Nutrition I Keyboarding I Computer Applications Select from course offerings in Mathematics, Science, Social Studies, Home Economics, etc.
ELEVENTH GRADE	**TWELFTH GRADE**
English	English
Algebra 1B, Technical Mathematics, Algebra II or Algebra III/Trigonometry	Geometry, Algebra II, Algebra III/Trigonometry, Introduction to College Mathematics
Physics, Chemistry or Anatomy/Physiology	Chemistry or Physics
United States History	
Electives: Introduction to Medicine Health Occupations I Foods and Nutrition I/II Select from course offerings in Science, Mathematics , Social Studies, Home Economics,, etc.	Electives: Health Occupations II Medical Professions Seminar Foods and Nutrition I/II Select from course offerings in Science, Mathematics , Social Studies, Home Economics,, etc.

* For a description of each course listed refer to the *Course Description Guide, Grades 9-12, 1993-94, Wake County Public School System.*

COLLEGE/TECH PREP–MEDICAL/HEALTH PROFESSIONS POSTSECONDARY EDUCATION PROGRAMS

ONE-YEAR DIPLOMA PROGRAMS

(Offered at technical community colleges such as Wake Technical Community College)

Dental Assisting
Medical Assisting
Home Health Aide

TWO-YEAR ASSOCIATE DEGREE PROGRAMS

(Offered at technical community colleges such as Wake Technical Community College)

Emergency Medical Science
Medical Laboratory Technology
Radiologic Technology
Registered Nursing
Surgical Technology
Respiratory Care Technology

FOUR-YEAR BACHELOR DEGREE PROGRAMS

(Offered at four-year colleges or universities)

Biomedical Science
Medical Technology
Nursing
Health Occupations Teacher Education
Pathology
Physical Education and Sport Science
Physical Therapy
Public Health
Radiological Science
Pre-Dentistry
Pre-Medical

NOTE: Students are encouraged to consult with their counselors/advisors to assure that

- courses selected meet minimum requirements for high school graduation and college/university entry.
- they select a concentration of electives from English, Mathematics, Science, Social Studies, Foreign Language, the Arts, Vocational Education, Computer Education and Health/Physical Education which will enhance their personal and career objectives.

LOCAL POLICIES

The Wake County College-Tech Prep Consortium recognizes that every student can learn, and, therefore, believes that every student can uniquely benefit from College-Tech Prep. The consortium leadership is committed to the success of College-Tech Prep in Wake County. There are three key local policy issues which will impact the success of the program:

1. It is imperative that students are aware of and involved in planning a College-Tech Prep career path by the end of the eighth-grade year. The early identification of College-Tech Prep students and the guidance resources to make this happen should be policies of the highest priority. If this is not done, students may be required to take remedial or developmental courses at the community college or perhaps be lost from the program altogether. The crucial role of career counseling cannot be underestimated in this process. Resources must be provided to support career counseling and guidance.
2. In writing articulation agreements, the existing requirements of the North Carolina State Board of Education and Board of Governors for the Department of Community Colleges must be considered. Articulation agreements need to clearly define the competencies necessary for students to move from one level to another in a "seamless curriculum" approach. It is important that postsecondary institutions and business partners clearly define and communicate requirements to the secondary school. Policymakers must be committed to the development of a curriculum model that matches students' needs as they move from secondary and postsecondary institutions to the workforce.
3. It is the responsibility of the consortium to design a well-planned job placement program with the surrounding business community. Business partners must formally agree to support the College-Tech Prep Program. This support must be qualified in concrete and specific terms, with plans and programs to provide a goal for job placement that College-Tech Prep students in Wake County can plainly see.

ARTICULATION

The Wake County Public School System and Wake Technical Community College currently have an executive articulation agreement. That agreement defines the relationships and responsibilities between the school district and the community college regarding specific programs of study and course sequencing.

To implement this articulation agreement between Sanderson High School and Wake Technical Community College, several existing and potential barriers must be addressed. These include

- preferences for traditional practices and policies,
- lack of time for staff development,
- lack of funding,
- logistical complexity of adjusting curriculum and class schedules, and
- policy interpretation regarding responsibility and accountability between the two faculties.

For successful articulation, the following must occur:

- The administrations of Sanderson High School and Wake Technical Community College must be committed to the development of the Tech Prep program. This commitment must be expressed in a written agreement and demonstrated by the commitment of money and release time for necessary personnel to plan and implement activities.
- A Tech Prep team composed of staff from each school must meet regularly (monthly) to address issues affecting the program.
- A timeline of implementation activities must be established.
- A Tech Prep liaison (or committee) must be appointed at each school.
- Information on activities and issues related to the Tech Prep program must be disseminated within the two schools by means of newsletters, supportive literature, and NCRVE press releases.
- Competencies established by the community college for their courses must be communicated to Sanderson High School's teaching staff to direct and focus their Tech Prep curriculum development.
- To facilitate communication about these competencies, regular instructor conferences between the community college and the high school faculty must occur.

CURRICULUM DEVELOPMENT

Today and in the future, employees will need educational preparation in such areas as new technology, participative management, statistical quality controls, and customer service. Accordingly, the Wake County Public School System and Wake Technical Community College have developed eight major College-Tech Prep courses of study. Each student entering high school will choose a curriculum option based on his or her career goals.

College-Tech Prep and Occu-Prep (a modification of the clusters in the College-Tech Prep option) programs are designed to help a student focus on a career goal as he or she pursues a rigorous course of study. Specifically, in the Wake County Public School System and at the Wake Technical Community College, College-Tech Prep is designed to ensure graduates a smooth transition into degree-seeking programs at technical, community, or junior colleges, and/or bachelor degree programs at four-year universities or colleges. On the other hand, Occu-Prep is designed to prepare students for entry into the workforce upon graduation from high school and/or continuing education programs at Wake Tech.

The eight major areas of preparation or clusters include Liberal Arts, Environmental and Life Sciences, Engineering Technology, Industrial Technology, Business Management, Marketing Management, Medical/Health Professions, and Human/Social Services. Each cluster combines appropriate Math, Science, English, and Social Studies courses with technically oriented vocational courses. Students will be assisted by teachers, counselors, parents, and community members in determining a goal-oriented plan of study in a cluster area. However, regardless of the curriculum option or cluster selected, a student will not be "locked in" to that course of study.

For the 1993-1994 school year, all ninth and tenth graders at Sanderson High School have chosen a career cluster and have developed a goal-oriented, four-year plan or course of study. All options of College-Tech Prep are available except for the Medical/Health Professions program. (With the help of curriculum planning committees and the Tech Prep Program Coordinator, a Professional Handbook and a Student/Parent Handbook were used to help implement the other seven programs.) The NCRVE planning team will play a leading role in integration-related changes of individual subject areas within the following courses of study or clusters: Industrial Technology, Human/Social Services, Business Management, Engineering Technology, and Liberal Arts.

The Wake County College-Tech Prep Steering Committee will assume leadership in creating subcommittees that will determine the technical and academic skills needed to help make students successful in a career by

- identifying the regional job opportunities to begin to prepare students for roles in the existing market, and
- meeting with businesses, industries, community agencies, and postsecondary institutions to determine competencies necessary for the existing job opportunities.

Based on these identified competencies, the NCRVE planning team will assess how well the course content at Sanderson fits within the integrated College-Tech Prep Program.

Vocational and academic teachers will identify the desired student outcomes for their courses, develop methods of integration within the curriculum, and develop new curricula for the College-Tech Prep Program. To model this process, beginning in the 1993-1994 school year, the planning team at Sanderson will concentrate its efforts in such courses as Communications Systems, English, Law and Justice, and Computer Applications. As other staff members are familiarized with the College-Tech Prep Program through extensive marketing and modeling, all courses in the curriculum, within all educational clusters, will integrate vocational and academic skills.

Sanderson High School and Wake Tech Community College anticipate some resistance to the planning and development of integrated vocational and academic classes within the established clusters. Obstacles anticipated include perceptions about vocational education and entrenched academic attitudes; communication problems with a variety of individuals (from individual teachers to state policymakers); resistance to change because of structure, time limitations, and state requirements; and lastly, financial and resource-related barriers.

We will use the following strategies to overcome these barriers:

- Emphasize staff development to educate all people about the merits of Tech Prep (e.g., school-to-work transition, financial rewards, and potential for success).

- Identify communication barriers at *each* level and encourage working together as partners through meetings and exchanges, liaisons, committees, marketing, timelines, and evaluations.
- Determine causes of resistance by redefining educational requirements, competencies, and scheduling so that they support each other at all levels of a student's goal-oriented plan of study.
- Identify financial needs and share the costs and burdens through total involvement of all partners in rigorous marketing, procurement of resources, lobbying for the initiative, and grant-writing for federal, foundation, and corporate funds.

Additionally, the Steering Committee will need to explore funding sources to support the development and enhancement of integrated programs.

College-Tech Prep at Sanderson will be in the planning and development stage for the next two years. Competencies, outcomes, student abilities, and integrated courses will be determined before we can get to the three- to five-year implementation stage. The planning team will then be able to demonstrate the program throughout the county.

GUIDANCE AND COUNSELING

Students in the College-Tech Prep Program will be provided counseling and guidance from a variety of sources. A key source is the Student Services Department at Sanderson. A major component of Student Services is to provide career awareness and exploration by assessing students' interests and aptitudes and by assisting students to progress successfully through the program.

To assess students' interests and aptitudes, the following activities must occur:

- Review students' four-year plans and update portfolios annually.
- Monitor progress in selected courses (including attendance).
- Administer Self-Directed Search to all tenth graders.
- Make available additional values and/or interest inventories such as COPSystem Interest Inventory (COPS), Career Orientation Placement and Evaluation Survey (COPES), and Career Ability Placement Survey (CAPS) by Edits.
- Review progress on standardized tests as related to future employment and/or admission to postsecondary institutions.

To assist students to progress successfully through College-Tech Prep, we must

- review their decision-making skills,
- assist them in following student assessment plan,
- introduce available resources pertaining to career decisions (e.g., Career Center, faculty, and business community),
- introduce work ethic and related skills,
- assess special populations for vocational training/placement,
- work cooperatively with the assistant principal to issue awards for College-Tech Prep achievement as students reach various plateaus,
- provide college/career fairs (with the Industry Education Coordinator), and
- provide job shadowing activities.

To involve other key players (teachers, parents, and representatives from business/industry) in becoming aware and supportive of the College-Tech Prep Program, we must

- use marketing materials,
- hold individual/group meetings to address questions and concerns pertaining to the program, and
- solicit ideas/plans from these key players to improve upon the delivery of services for the College-Tech Prep Program.

COLLEGE-TECH PREP PROGRAM FOR AT-RISK/SPECIAL POPULATIONS

The purpose of the at-risk/special populations component of the College-Tech Prep or Occu-Prep concept is to assess and monitor the student to ensure equal access to career options. Special populations will be identified as follows:

- English as a Second Language students (ESL)
- Minority students
- Students with disabilities

- Dropout population (i.e., teen parents, students with alcohol and substance abuse problems, poor attendees, academic underachievers)
- Economically disadvantaged students

These at-risk populations will be identified by using traditional data-tracking systems and at-risk counseling personnel. Special services/resources will be provided to ensure that all at-risk/special population students will have opportunities for full inclusion in the College-Tech Prep Program. A variety of instructional strategies will be used to guarantee success for all at-risk/special population students. Key strategies and personnel to address the needs of these populations include

- vocational assessments by a vocational assessment team, a vocational resource person, and a vocational rehabilitation counselor;
- instructional strategies and activities based on the needs assessment of at-risk populations;
- mentoring programs utilizing peers, professional staff, business people, community-based organizations, churches, and fraternities/sororities;
- business-linkage programs to get students connected with the workplace, including job-shadowing, on-site visits to the workplace, and apprenticeships;
- specifically identified staff to target services for these populations;
- career development information and activities that target these populations;
- incentives, rewards, and recognition for the accomplishments of these populations;
- staff coordination activities to monitor and assess success of at-risk students;
- crisis intervention programs/referral for addressing individual needs and devising individual plans; and
- student committees to address self-esteem issues for all at-risk students.

PARTNERSHIPS

The success of the Wake County College-Tech Prep Program will depend upon the development of effective partnerships operating at all educational levels. The Steering Committee, the School/Business Partnership Program Specialist, Wake

Technical Community College Foundation, and selected staff will lead in the development of partnership initiatives. These initiatives will include internal partnerships among staff, as well as external partnerships between the school and the following entities:

- Business and industry
- Parents/home
- Postsecondary institutions
- Community-based organizations
- Other educational agencies

STAFF DEVELOPMENT

Given the current status of the College-Tech Prep initiative at Sanderson High School, staff development is a crucial element of the planning and implementation phase. The challenge will be to persuade increasing numbers of educators that the College-Tech Prep Program is an opportunity to energize their own instruction and an opportunity to improve the quality of education for *all* students. For this program to succeed, the instructional staff needs to feel ownership over the program and to see it as an extension of their own commitment to providing the best education possible for Sanderson students.

In order to develop this involvement, we need to

- schedule meetings between the NCRVE planning team and administrators from both institutions to discuss the proposal (August-October 1993);
- orient staff on the College-Tech Prep Program and the NCRVE Institute (late August 1993, pre-school meeting);
- inservice all staff members on the career development plan and process (late August 1993, pre-school meeting);
- establish and begin training of school-based committees to develop strategies for implementing the plan during the 1994-1995 school year. This includes establishing partnerships between vocational and academic teachers. (The NCRVE planning team will model some of these strategies during the 1993-1994 school year.);

- involve committee members in state, regional, and national conferences on Tech Prep and curriculum integration, as well as in on-site visits to school systems that have a Tech Prep program in operation;
- involve committee members in business/industry educational tours;
- hold quarterly meetings between secondary, postsecondary, and business/industry/community partners (beginning with the first quarter of the 1993-1994 school year); and
- hold curriculum development workshops between secondary, postsecondary, and business/industry/community partners on developing an integrated curriculum (beginning with the 1993-1994 school year).

By January 1994, a review will be conducted of these activities by the Steering Committee and the NCRVE Planning Team. At this time, planning for spring activities will be completed.

MARKETING

An aggressive and continuous campaign will be conducted to promote College-Tech Prep. This multifaceted plan will emphasize College-Tech Prep's educational and socioeconomic value to the entire community. Target audiences will include students, parents, counselors, teachers, administrators, and advisory committee members; additionally, we will focus upon prospective students and their families, concerned members of the community, business and industry groups, and community agencies and organizations. All marketing efforts will reflect the ethnic and linguistic diversity of the community.

To be effective, College-Tech Prep marketing should develop specific plans for various target audiences to publicize the desirability of College-Tech Prep as a successful way to attain career goals. To meet these marketing goals, a marketing advisory committee will be organized to implement several different marketing strategies. This committee will be composed of representatives from Sanderson High, Wake Tech, businesses, parents, and community organizations. Strategies which were used in the past and/or will be pursued include the following:

- *Career Development Program 1993-1994* (and ongoing). This student/parent handbook was developed, printed, and distributed to incoming ninth graders in the spring of 1993.
- A companion handbook for professional staff. It was distributed in the spring of 1993.
- *Careers: College-Tech Prep Program* brochure. This brochure was developed, printed, and distributed in 1991 and updated for 1993.
- Direct mailing of College-Tech Prep information to parents.
- A special newspaper pull-out in the *News and Observer*. This supplement was donated and published by the newspaper in spring of 1993.
- *School Talk* television program promoting College-Tech Prep and a recorded presentation to Wake County Commissioners. Both aired on public access television stations.
- Marketing items bearing the College-Tech Prep logo: shirts, pins, pens, school supplies, pen lights, book covers, posters, and bumper stickers.
- Promotional displays, mailings, and advertising on bank statements and utility bills.
- Recognition items for College-Tech Prep partners, including plaques and certificates.
- Billboards in the community.
- Public service announcements on local television and radio stations.
- *Wake County School Post*, the internal newsletter for Wake County Public School System staff.
- Sanderson College-Tech Prep Newsletter. It should be developed and include information from Wake Tech.
- Presentations providing information about College-Tech Prep and soliciting partnerships with public and civic community organizations.
- Promotional videos.

The principal barrier to implementing these marketing strategies is limited resources. A wise use of our resources such as pooling funds and targeting specific populations will enable the College-Tech Prep marketing plan to be successfully implemented. Each partner has a responsibility to work collaboratively to promote effective marketing strategies.

PROGRAM EVALUATION

Sanderson High School and Wake Technical Community College will use data available through the student information management system at each institution to determine the degree to which the College-Tech Prep Program's goals have been accomplished. This evaluation will be based on the following measures:

- By the beginning of the 1996-1997 school year, all students in grades nine through twelve will have a career development plan on file which includes vocational and academic courses appropriate for a designated career objective. The plan will be phased in with each incoming ninth grader as follows: 80% of students in 1993-1994, 90% of students in 1994-1995, and 100% of students in 1995-1996.

- By the winter of 1997-1998, Sanderson High School will assess the number of College-Tech Prep Program graduates (Class of 1997) who have matriculated to Wake Technical Community College who are

    - pursuing a certificate/degree in their declared career cluster, or

    - pursuing a certificate/degree in a different career cluster.

A minimum of 75% of College-Tech Prep graduates will indicate that they are enrolled in a certificate or degree-seeking educational program because the courses are related to their career objectives.

Data will be collected in the interim to determine progress toward this goal. Wake Tech Community College/Department of Community Colleges will cooperate in providing this data.

- By the winter of 1997-1998, Sanderson High School will assess the number of special populations graduates (Class of 1997 who are identified as disadvantaged, academically disadvantaged, economically disadvantaged, or ESL) who have matriculated to Wake Technical Community College as follows:

    - A minimum of 75% of these students will indicate that they are enrolled in a certificate or degree-seeking educational program because the courses are related to their career objective.

    - Data will be collected in the interim to determine progress toward this goal. Wake Tech Community College/Department of Community Colleges will cooperate in providing this data.

- Upon graduation from Sanderson High School, end-of-course vocational and academic tests will reflect an increase in the number of students demonstrating mastery of curriculum.

- The College-Tech Prep Program at Sanderson will result in an increase in the number of students who complete their requirements for graduation. Those enrolled in a career cluster will graduate at a higher rate by the end of the 1996-1997 school year.

- By 1998, the number of special needs students enrolling in and completing a program of study at Wake Tech will increase as a result of the College-Tech Prep Program. Using the 1996-1997 school year as the baseline data,
    - the percentage of special needs students completing vocational/technical programs will increase; and
    - the percentage of special needs students completing vocational/technical programs will be the same as the percentage of those completing all curriculum programs.
- By 1998, the number of students successfully completing a program of study at Wake Tech will increase as a result of these students completing the articulated College-Tech Prep Program. Successful completion means graduation from a certificate, diploma, or degree-curriculum program.
- The College-Tech Prep Program will result in a reduction of the need for remediation at the Wake Technical Community College.

Data will be collected annually beginning with the graduating class of 1993 at Sanderson. Wake Tech will provide yearly follow-up reports beginning with the students entering Wake Tech in the Fall of 1993. Including the information listed above, the program will measure average daily attendance, graduation rates, enrollment in Wake Tech from Sanderson, percentage of students in remedial courses at Wake Tech, students who continue in College-Tech Prep after the first year, the number of new courses which have been developed over a given period, the number of students placed in jobs after completing the program, and employer satisfaction with program graduates.

We expect students who matriculate through the College-Tech Prep Program to demonstrate significant improvement when they exit Sanderson as the Class of 1997.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Sanderson High School
Wake County Public School
Wake Technical Community College

Planning Component: Curriculum Integration

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Assisting vocational teachers in upgrading their academic knowledge	Beginning 1993-1994 school year	Wake Tech, Wake County Public Schools, and NCRVE Planning Team	NC State Department of Education, Business and Community Partners	• Examples of integrated curricula • Literature on integration • Technical assistance from integration experts	To develop an awareness among teachers of the value of an integrated curriculum.	Increase in the number of integrated courses in the curriculum and the number of teachers teaching an integrated curriculum
Assisting academic teachers in devising learning experiences that help students see the connections between communications, mathematics, science skills, and jobs	Beginning 1993-1994 school year	Wake Tech, Wake County Public Schools, and NCRVE Planning Team	NC State Department of Education, Business and Community Partners	• Examples of integrated curricula • Literature on integration • Technical assistance from integration experts	To develop an awareness among teachers of the value of an integrated curriculum.	Increase in the number of integrated courses in the curriculum and the number of teachers teaching an integrated curriculum
Assisting counselors and administrators in rethinking strategies for raising the rigor and status of the College-Tech Prep program	Beginning 1993-1994 school year	Wake Tech, Wake County Public Schools, and NCRVE Planning Team	NC State Department of Education, Business and Community Partners	• Examples of integrated curricula • Literature on integration • Technical assistance from integration experts	To develop an awareness among teachers of the value of an integrated curriculum.	Increase in the number of integrated courses in the curriculum and the number of teachers teaching an integrated curriculum

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Sanderson High School
Wake County Public School
Wake Technical Community College

Planning Component: Curriculum Integration (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To identify Math, Science, English, and Social Studies courses in which students taking vocational education are enrolled and develop selected integrated curriculum units to match the vocational/academic skills of these students. For example, • English/Computer Applications: to jointly teach writing skills and practical computer applications which will enable students to complete letters, essays, research, and other documents quickly and accurately in correct format; (continued)	Beginning 1993-1994 school year	Wake Tech, Wake County Public Schools, and NCRVE Planning Team	NC State Department of Education, Business and Community Partners	• Examples of integrated curricula • Literature on integration • Technical assistance from integration experts	To develop integrated curriculum units and model effective instructional practice and to include more teachers in the development and implementation of integrated instruction.	An increase in the number of integrated instructional units in the curriculum and increased student mastery of curriculum

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Sanderson High School
Wake County Public School
Wake Technical Community College

Planning Component: Curriculum Integration (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
• Law and Justice/ Communication Systems: to jointly participate in field trips to North Carolina patrol communications centers; to develop partnerships between the school and the communication facility personnel; to tour Wake Tech and receive information about related programs; and • Law and Justice/ Computer Applications: to jointly participate in the teaching of patrol procedure report writing and the computer applications of the materials.	Beginning 1993-1994 school year	Wake Tech, Wake County Public Schools, and NCRVE Planning Team	NC State Department of Education, Business and Community Partners	• Examples of integrated curricula • Literature on integration • Technical assistance from integration experts	To develop integrated curriculum units and model effective instructional practice and to include more teachers in the development and implementation of integrated instruction.	An increase in the number of integrated instructional units in the curriculum and increased student mastery of curriculum

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Sanderson High School
Wake County Public School
Wake Technical Community College

Planning Component: Curriculum Integration (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To identify workforce competencies necessary for entry-level positions in the eight defined career clusters of the College-Tech Prep Program.	Beginning 1993-1994, on a continuing basis to update changing competencies	Wake County Tech Prep Steering Committee, Business and Industry Partners, NCRVE Planning Team, and Curriculum Committees	Faculty, Administrations, and Community Agencies	Release time for staff and support funds for materials	• Improve partnerships between schools and business. • Create a curriculum more directly related to competencies needed in the workplace. • Improve understandings between school and business/community leadership. • Better prepare College-Tech graduates for the workforce.	Survey instruments for local business partners to assess employer satisfaction
To match competencies with appropriate course content.	Beginning 1993-1994 school year	NCRVE Planning Team/Tech Prep Curriculum Committees	Faculty at high school	Release time for staff and support funds for materials	To help students connect classroom instruction to workforce preparedness.	The completed document and evaluation of instructional practices
To develop integrated curriculum activities to match school-to-work transition.	Beginning 1993-1994 school year	NCRVE Planning Team/Tech Prep Curriculum Committees	Faculty at high school	Release time for staff and support funds for materials	To help students connect classroom instruction to workforce preparedness.	The completed document and evaluation of instructional practices

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Sanderson High School
Wake County Public School
Wake Technical Community College

Planning Component: Guidance and Counseling

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
College/Career Days	Beginning 1993-1994 school year	Counseling Department, Industry Education Coordinator, Faculty Advisors, and Partnerships	Parents, Wake Tech, and Business/Industry	Wake County Public Schools and Carolinas' Association of College Registrars and Admissions Officers (CACRAO)	Students will continue to gain information which will help them keep focused upon their College-Tech Prep Plan.	Students' written evaluations
Job Shadowing	Beginning 1993-1994 school year	Counseling Department, Industry Education Coordinator, Business Partnerships Coordinator	Business/Industry Partners	Wake County Public Schools and Carolinas' Association of College Registrars and Admissions Officers (CACRAO)	Students will continue to gain information which will help them keep focused upon their College-Tech Prep Plan.	Students' written evaluations
Increased usage of Career Center	Beginning 1993-1994 school year	Counseling Department and Industry Education Coordinator	Wake Tech and Business Industry Coordinator	Wake County Public Schools and Carolinas' Association of College Registrars and Admissions Officers (CACRAO)	Students will continue to gain information which will help them keep focused upon their College-Tech Prep Plan.	Students' written evaluations

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Sanderson High School
Wake County Public School
Wake Technical Community College

Planning Component: Guidance and Counseling (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Business/Industry speakers	Beginning 1993-1994 school year	Counseling Department and Industry Education Coordinator	Business Industry Partnerships	Wake County Public Schools and Carolinas' Association of College Registrars and Admissions Officers (CACRAO)	Students will continue to gain information which will help them keep focused upon their College-Tech Prep Plan.	Students' written evaluations
Students will receive additional training in decision-making skills to ensure successful progression through the College-Tech Prep Program.	Beginning 1993-1994 school year	Counseling Department	Faculty, Business/Industry, Industry Education Counselor, and Special Program Staff	Career Development Program Student/Parent Handbook and relevant literature in student decision-making strategies	Students will possess the necessary decision-making skills to develop an effective career plan.	Students will follow a sequenced course of study based upon their career plan.
9th grade students (Class of 1997) will be assessed in career interests and aptitudes (4-year plans) in order to provide counseling services for students in setting realistic career goals and in planning appropriate educational pathways.	By December 1993	Counseling Department	Faculty, Business/Industry, Industry Education Counselor, and Special Program Staff	California Achievement Test Scores (Grade 8), Interest and Aptitude Inventories, and College-Tech Prep four-year plans	Students will be knowledgeable of their interests and aptitudes. Students will be able to recognize and choose appropriate courses of study that follow their career plan.	Students enrolled in classes appropriate to their career plan

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Sanderson High School
Wake County Public School
Wake Technical Community College

Planning Component: Guidance and Counseling (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
9th grade students will administer self-directed search.	December 1994	Counseling Department	Classroom teachers/advisors	Interest and aptitude inventories	• Students will be knowledgeable of their interests and aptitudes. • Students will be able to recognize and choose appropriate courses of study that follow their career plan.	Students enrolled in classes appropriate to their career plan

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Sanderson High School
Wake County Public School
Wake Technical Community College

Planning Component: At-Risk/Special Populations

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To identify instructional strategies and resources appropriate for special population students to enhance their development of meaningful career plans.	Begin by 1993-1994 school year	Vocational Assessment Team and Vocational/ Academic teachers	Wake County Public Schools, Business/Industry and Related Community Agencies	Business partners, school/community committees, and available curriculum materials	Students will be knowledgeable of their interests and aptitudes. Students will recognize and choose appropriate courses of study for their career goals.	Student placement and success
To provide identified strategies and resources to teaching faculty.	Begin by 1993-1994 school year	Curriculum Committee and Tech Prep Coordinator	Program Specialists and Wake County Public School System	Curriculum materials and planning time	Instructional strategies appropriate to students' needs	The performance of students in the classroom and upon graduation
To develop and implement integrated instructional activities for special needs students.	1994-1996	Vocational Assessment Team and Vocational/ Academic teachers	Program specialists in special programs	Curriculum materials and planning time	An integrated curriculum appropriate for special population students; career plans and identified courses of study for special population students; and entry-level workforce skills demonstrably mastered by special population students	Student placement in appropriate worksites and a bank of appropriate integrated instructional materials for special population students

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Sanderson High School
Wake County Public School
Wake Technical Community College

Planning Component: Partnerships

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Identify and promote involvement of leaders to serve on advisory committees.	Fall 1993	College-Tech Prep Steering Committee, NCRVE Planning Team, and School and Community Leaders	Subject-area instructors and appropriate secondary and postsecondary personnel	Effective publicity and marketing strategies such as brochures, mailings, and personal contacts	To obtain a firm commitment from school/community leaders to develop a partnership that will effectively serve all students in the College-Tech Prep Program.	Increased involvement of community in partnerships
Identify job shadowing opportunities.	Late Fall through early Winter, 1993-1994	Coordinator for school/business partnerships and Industry Education Coordinator	Subject-area instructors, counselors, and business partners	Effective publicity and marketing strategies such as brochures, mailings, and personal contacts	To provide students with experiences outside of classroom that focus on career development.	Number of students involved in experiences related to employment
Identify mentoring opportunities.	Late Fall through early Winter, 1993-1994	Coordinator for school/business partnerships and Industry Education Coordinator	Subject-area instructors, counselors, and business partners	Effective publicity and marketing strategies such as brochures, mailings, and personal contacts	To provide students with experiences outside of classroom that focus on career development.	Number of students involved in these activities

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Sanderson High School
Wake County Public School
Wake Technical Community College

Planning Component: Partnerships (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Expand scope and function of advisory committees in specific subject/curriculum areas.	Late Fall through early Winter, 1993-1994	NCRVE Team, Department Chairperson, and school administrators	Business and community leaders and PTA leaders	Survey of staff and parents to determine scope and functions that need to be expanded	More community involvement	Extent of community involvement
Create opportunities for partners to come together and dialogue.	Late Fall through early Winter, 1993-1994	NCRVE Team, Department Chairperson, and school administrators	Business and community leaders and PTA leaders	Survey of staff and parents to determine scope and functions that need to be expanded	More community involvement	Extent of community involvement

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: High School
Wake County Public School
Wake Technical Community College

Planning Component: Staff Development

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Provide an orientation meeting for teachers, counselors, and administrators to build an awareness and understanding of the College-Tech Prep initiative.	August and September 1993	Business/Industry and School/Community leaders	Business/Industry and School/Community leaders	• An environment (such as local convention center or community auditorium) where staff can be exposed to the College-Tech Prep agenda, internalize the presentation, and dialogue among colleagues • Experts in the Tech Prep field who can generate enthusiasm for the initiative • Materials (e.g., brochures, videos, pencils, and pads) to hand out to participants • Food and drink	To develop an understanding and enthusiasm for the College-Tech Prep initiative in Wake County.	• Develop an enthused, involved faculty and staff. • Review progress by January 1994 and adjust/plan accordingly for additional staff development activities.
Introduce staff to the need to change.	August and September 1993	NCRVE Team and Tech Prep Coordinator	Business/Industry and School/Community leaders	Materials (e.g., brochures and videos)	To develop an understanding and enthusiasm for the College-Tech Prep initiative in Wake County.	Evaluation of staff involvement
Make staff aware of the Wake County Tech Prep Consortium plan.	August and September 1993	NCRVE Team and Tech Prep Coordinator	Business/Industry and School/Community leaders	Materials (e.g., brochures and videos)	To develop an understanding and enthusiasm for the College-Tech Prep initiative in Wake County.	Evaluation of staff involvement

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Sanderson High School
Wake County Public School
Wake Technical Community College

Planning Component: Staff Development (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Solicit support from staff in implementation of the plan.	1993-1994	NCRVE Planning Team	Tech Prep Coordinator and Assistant Principal	Meeting time	More faculty involvement support	Review progress and evaluate involvement.
Recruit staff to promote College-Tech Prep.	Late Fall 1993	Administrators, Tech Prep Coordinator, NCRVE Planning Team, and Wake County College-Tech Prep Steering Committee	Business, Industry, and Community	To be identified.	• A more detailed plan and strategy for implementing College-Tech Prep plan in Wake County • More staff members involved in the process	Review progress by January 1994 and adjust/plan accordingly for additional staff development activities.
Meet with staff members by specialty area who have demonstrated interest in the initiative.	Fall 1993	Administrators, Tech Prep Coordinator, NCRVE Planning Team, and Wake County College-Tech Prep Steering Committee	Business, Industry, and Community	To be identified.	Develop an enthused, involved faculty and staff.	Review progress by January 1994 and adjust/plan accordingly for additional staff development activities.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Sanderson High School
Wake County Public School
Wake Technical Community College

Planning Component: Staff Development (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Involve interested staff members in College-Tech Prep committees.	Late Fall 1993	NCRVE Team and Tech Prep Coordinator	Wake Tech Community College staff	Funding for materials, stipends, speakers, and workshops	Staff involvement	Review progress by January 1994 and adjust/plan accordingly for additional staff development activities.
Begin to work on curriculum development integration strategies between vocational and academic teachers.	Late Fall 1993	NCRVE Team and Tech Prep Coordinator	Assistant Principal for C&I and Program Specialists	Funding for materials, stipends, speakers, and workshops	An integrated curriculum	Review progress by January 1994 and adjust/plan accordingly for additional staff development activities.
Identify and address specific staff development needs by discipline and/or role play (e.g., vocational/ academic teacher, counselor, and administrator).	Winter 1993-1994	Administrators, Tech Prep Coordinator, NCRVE Planning Team, and Wake County College-Tech Prep Steering Committee	Business, Industry, and Community	• Funding to provide materials, supplies, stipends, and speakers for quality inservice activities • Funding to send participants to conferences	Develop an enthused, involved faculty and staff.	Review progress by January 1994 and adjust/plan accordingly for additional staff development activities.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Sanderson High School
Wake County Public School
Wake Technical Community College

Planning Component: Staff Development (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Survey teachers and other staff members to determine the type of staff development activities needed.	Winter 1993-1994	NCRVE Team and Tech Prep Coordinator	Program Specialists	Materials and time for staff development	A more enthusiastic and involved staff	Teacher response to survey
Plan and conduct appropriate staff development activities as required (e.g., teaching strategies, applied academics, learning styles, and integrated curriculum workshops).	Summer 1994	NCRVE Team, Tech Prep Coordinator, and Program Specialists	Consultants	Funding to provide materials, supplies, stipends, and speakers to provide quality inservice activities	A more involved staff and exciting instructional activity in the classroom	• Written evaluation at the end of workshops • Follow-up survey to determine effectiveness
Enable members to attend state and national conferences.	1993-1994	Staff members (selected)	Principal, Assistant Principal, and Program Specialists	Funding to send participants to conferences	A more involved staff and exciting instructional activity in the classroom	Written evaluation following conferences

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Sanderson High School
Wake County Public School
Wake Technical Community College

Planning Component: Marketing

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To develop a College-Tech Prep program marketing strategy that targets key audiences in the Wake County community. Key audiences include school-based personnel in partnership with business and the community.	Fall 1993	Wake County Tech Prep Steering Committee, NCRVE Planning Team, School/Community leaders, Marketing Committee	Public Information and Graphics Departments of Schools and Businesses	Professional experts in marketing, release time, and funding	• To create a wide base of community understanding and support of the College-Tech Prep initiative. • To ensure that each student has an understanding of the College-Tech Prep program in order to improve career decision-making outcomes. • To improve understanding and communication between schools, business, and the community.	• All students will develop a career plan and identify a course of study. • Employers will be surveyed to determine their satisfaction with the quality of the entry-level workforce. • Schools and community will be surveyed on their knowledge of and support for College-Tech Prep.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Sanderson High School
Wake County Public School
Wake Technical Community College

Planning Component: Marketing (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To meet with school/community leaders to establish Marketing Committee.	Fall 1993	Wake County Tech Prep Steering Committee, NCRVE Planning Team, School/Community leaders, Marketing Committee	Public Information and Graphics Departments of Schools and Businesses	Names of interested and key people	• To create a wide base of community understanding and support of the College-Tech Prep initiative. • To ensure that each student has an understanding of the College-Tech Prep program in order to improve career decision-making outcomes. • To improve understanding and communication between schools, business, and the community.	The involvement of community leaders

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Sanderson High School
Wake County Public School
Wake Technical Community College

Planning Component: Marketing (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To design College-Tech Prep marketing strategy for promotion and awareness of the program.	Fall 1993	Wake County Tech Prep Steering Committee, NCRVE Planning Team, School/Community leaders, Marketing Committee	Public Information and Graphics Departments of Schools and Businesses	Professional experts in marketing	• To create a wide base of community understanding and support of the College-Tech Prep initiative. • To ensure that each student has an understanding of the College-Tech Prep program in order to improve career decision-making outcomes. • To improve understanding and communication between schools, business, and the community.	Community awareness and acceptance

MERGENTHALER VOCATIONAL-TECHNICAL HIGH SCHOOL
BALTIMORE CITY COMMUNITY COLLEGE
BALTIMORE, MARYLAND

Planning Document Developed at the NCRVE 1993 National Institute:
"Establishing Integrated Tech Prep Programs in Urban Schools"*
July 14-23, 1993

COMMUNITY DESCRIPTION

Mergenthaler Vocational-Technical Senior High School (MERVO) and Baltimore City Community College (BCCC) are located in Baltimore, Maryland. An urban area of approximately 760,000 persons, Baltimore fits the demographic profile of many urban, inner-city areas. The Greater Metropolitan Baltimore Area includes Baltimore City, Baltimore, Howard, Harford, and Arundel counties and extends to the Washington, DC area. Employment demand data for program planning purposes are based on the concept of an extended metropolitan area. From an employment perspective, the metropolitan area reflects employment trends for the entire area population.

The city of Baltimore has a relatively high unemployment rate, particularly among African-American males between the ages of 15 and 25. The $16,000 average annual household income in Baltimore City is in stark contrast to the $31,000 average annual household income in the surrounding counties. There has been renewed emphasis on occupational education and school reform in Baltimore. Tech Prep represents one of the key elements in this school reform effort.

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* This is a working paper. It has not been reviewed by either the NCRVE or the educational institutions/agencies where the authors are employed. Therefore, this paper represents the views of the authors only.

DESCRIPTION OF CURRENT PROGRAMS

Mergenthaler Vocational-Technical High School (MERVO) offers foreign languages, mathematics courses from Algebra through Trigonometry, and English, with an emphasis on writing/reading. The Instructional Computer Repair program at MERVO provides students with basic theories and skills in repair and maintenance of computers, lab safety, and small business practices. MERVO offers a "live shop" simulation (work environment) in the twelfth grade.

Baltimore City Community College offers an Associate of Applied Science (AAS) degree and a part-time (less than two years) certificate program in Computer Electronics. In addition to electronics courses, the program includes courses in networking, computer programming, computer interfacing, and technical applications. The program emphasizes both computer hardware and applications.

The Electronics program at MERVO currently accommodates approximately forty eleventh-grade students and approximately forty twelfth-grade students. (Subsequent to conversion to Tech Prep, the number of applicants to the secondary electronics program is expected to increase by up to 50%.) Most twelfth-grade students are expected to complete the secondary program and enter the BCCC Articulated Electronics Technology program within three years in order to receive advanced credit. Realistically, it is expected that 75% of these secondary students will immediately continue into the postsecondary program.

Although electronics is traditionally a male-dominated field, there are no real obstacles to employment of females in this area of employment. The Electronics Technology Tech Prep Committee acknowledges that some traditional biases exist against women choosing to study and work in a field that relies heavily on mathematics and science. Therefore, the team will work closely with guidance counselors to ensure that women are targeted for recruitment. (One approach to recruitment will be to use successful women in the field as recruiters.) Approximately 15% of the students enrolled in the existing Electronics program are women and approximately 50% of the 140 students presently enrolled in the BCCC Electronics Technology program are female.

MERVO and BCCC bring many strengths to this Electronics Technology Tech Prep Program, some of which are

- good institutional support;
- knowledgeable faculty, administrators, and students;
- local, state, and federal government support;
- good facilities;
- resources;
- an acknowledged need for the program;
- a committed implementation team; and
- a supportive postsecondary advisory committee serving both agencies.

There are, however, certain weaknesses which MERVO and BCCC bring to Electronics Technology Tech Prep such as

- a need for staff development activities to facilitate awareness and implementation strategies related to Tech Prep for faculty and administrators;
- a need to market Tech Prep and electronics technology to all audiences (students, parents, community); and
- an inactive high school advisory committee for the present Electronics Technology program.

The Tech Prep program is expected to help address student motivation, parental involvement, marketing and recruitment, and the attitudes of faculty and advisors responsible for implementation.

During the academic year 1992-1993, approximately 20% of the applicants for the existing MERVO Electronics program were turned away due to lack of available slots. We expect that this level of interest in electronics will continue as the Electronics Technology Tech Prep Program becomes a reality.

BALTIMORE CITY INTEGRATED ELECTRONICS TECHNOLOGY TECH PREP TEAM

Mergenthaler Vocational-Technical High School

- George Wright, Vice Principal
- Laura P. Byrd, Business Education Department Head
- Isaiah Fletcher, English Instructor
- Jack Jacobs, Instructor, Industrial Electronics/Instructional Computer Repair
- Faye Renwick, Counselor

Baltimore City Community College

- Stan D. Brown, Tech Prep Coordinator
- Joan M. Finucci, Chairperson, Department of Mathematics, Engineering, and Computer Science
- Gregory M. Hunter, Director, Upward Bound
- Lee Piccinini, Coordinator, Computer Electronics and Telecommunications Technology Department
- Shirlene L. Snowden, Chairperson, Department of Business and Information Systems

Baltimore City Public Schools Office of Career and Technology Education

- Maggie A. Caples, Curriculum Specialist for Academic/Career and Technology Integration

Maryland State Department of Education

- Jim Richter, Coordinator, Division of Career Technology and Adult Learning

The Tech Prep Consortium Leadership Committee (comprised of representatives from the BCCC, Baltimore City Public Schools, and Baltimore City Advisory Council on Vocational Education) will provide guidance, set policy, and assist with program implementation. The participants bring their specific areas of expertise to the program. Technical and academic instructors and administrators have been recruited for curriculum development. Counselors and the Student Support representative provide direction for designing

- support services,
- the recruitment process,
- parental involvement, and
- career awareness strategies.

All team members are contributors to program planning and the implementation process. The overall program is directed and coordinated by the Tech Prep Coordinator and the Baltimore City Office of Career and Technology Education representative. The State Department of Education representative clarifies guidelines and oversees the program.

The Tech Prep program has been endorsed by the public school system Superintendent, the community college President, and the high school Principal, who have communicated to their staffs the importance of Tech Prep and have made it a high priority. The Tech Prep Coordinator reports directly to the community college Vice-President for Academic Affairs. This program involves department chairs, faculty, directors, and other members of the college community. The high school Assistant Principal, department heads, and teachers will collaborate to help assure a smoother integration of Tech Prep into occupational programs at the high school.

PHILOSOPHY AND MISSION

The philosophy of the Tech Prep Program is to prepare students to join the workforce through the integration of education, business, labor, industry, and the community. Tech Prep is an articulated educational partnership among business and industry, secondary, and postsecondary education (see Appendix A for operational definitions of key terms used in this plan). This program includes a common core of math, science, communications, and technology designed to prepare students for lifelong learning and employment in a competitive global society.

The mission of the Baltimore City Tech Prep Electronics program is to provide students with a state-of-the-art electronics technology-based path that integrates rigorous technical and academic preparation. Its purposes are to help students maximize their postsecondary study and work options, to compete in the global workforce, and to meet the economic development needs of the Greater Baltimore Metropolitan Area.

STUDENT GOALS

The Baltimore City Electronics Tech Prep Team's integration plan will ensure that students can adapt to the changing environment of the future workplace. The Tech Prep Electronics Technology program will increase the number of students enrolling in occupational programs, decrease remediation required at the postsecondary level, and increase the number of students successfully completing the postsecondary program. This will be accomplished through the collaborative efforts of career/technology and academic personnel at both the secondary and postsecondary levels, with input from business and the community to help plan, teach, and work toward these common goals.

As a result of participation in the Electronics Technology Tech Prep Program, students will

- experience learning that is relevant to the electronics industry;
- demonstrate increased interest in school;
- exhibit engagement in the learning process in all subject areas;
- improve attendance;
- raise their level of performance to meet the expectations of both the Maryland School Performance Program and postsecondary measures;
- increase their pass rate in all subject areas;
- strengthen their basic skills and academic competencies in all subject areas;
- be well-prepared for postsecondary education and/or jobs with a career path;
- graduate meeting employability competencies;
- exhibit lifelong learning skills;

- demonstrate an increased level of self-esteem; and
- demonstrate comprehension of money management and financial planning necessary for entrepreneurship and independent living.

STUDENT OUTCOMES

Students completing the Electronics Technology Tech Prep sequence will

- understand the historical development of and the relationships among the systems within our society and be participants in the dynamics of these systems;
- apply science and mathematics concepts and processes, showing an understanding of how they integrate with electronics;
- develop skills in selecting equipment and tools, applying technology to specific tasks, and maintaining and troubleshooting electronics devices;
- use current technology, including computers, to process information and produce high quality products;
- communicate effectively through reading, writing, speaking, and listening;
- be able to acquire, evaluate, organize, maintain, interpret, and communicate data through the use of appropriate technology to process information;
- be able to think critically and solve problems;
- interpret human experience through literature and the fine and performing arts;
- be able to direct their own learning, including planning and carrying out complex projects;
- develop personal qualities such as individual responsibility, self-esteem, social skills, ethics, and integrity;
- develop management skills in the areas of allocating time, money, materials, space, and self; and
- be prepared to enter the electronics field as qualified employees, continue postsecondary education, or enter apprenticeship programs.

STRUCTURE OF THE TECH PREP PROGRAM

Program Areas/Occupational Clusters

The integrated Tech Prep program that this plan addresses is the Electronics Technology Cluster. At the secondary level, students will enroll in either Industrial Electronics or Instructional Computer Repair. At the community college level, students will enroll in Computer Electronics or Telecommunications Technology. Graduates at both the secondary and community college levels should be employable in the electronics field as technicians, repair persons, installers, and in related occupations. Although the program focuses on consumer electronics, employment is possible in computer electronics and telecommunications across a broad range of electronics occupations.

The students who will be included in the program are those who have demonstrated

- appropriate mathematics and reading levels (currently the entrance requirements at MERVO are reading and mathematics scores at grade level);
- a high attendance score (currently MERVO requires at least 90% attendance);
- an expressed interest in technology study and careers;
- an appropriate grade point average (currently MERVO requires an average of at least 80%); and
- interest in postsecondary education.

The program structure is illustrated in Appendix B. A strong guidance and career counseling connection is included in eighth grade. Basic courses (e.g., mathematics, science, technology education, computer literacy) in the high school electronics curriculum will be included in grades nine and ten, with introductory electronics courses offered in grades eleven and twelve. Work experience will be simulated in the classroom at the secondary level and will also be gained through cooperative education and interactive programs. Upon earning a high school diploma students may choose immediate entry into the community college program with advanced standing or entry into an occupation or apprenticeship. At the postsecondary level a student may take a direct route to an AAS degree and a subsequent Bachelor's degree or begin a "drop-in/drop-out" cycle that includes entry into electronics occupations along with electronics experience.

The faculty members involved in this program are as follows:

At MERVO

- Electronics
- English
- Mathematics
- Science
- Electricity
- VSST (Vocational Support Service Team)
- Computer

At BCCC

- Electronics
- English
- Mathematics
- Physics
- Computer

SHORT-TERM GOALS

- Develop and implement staff development programs.

  ACTIVITY: Two staff development workshops will be held at MERVO and two at BCCC during the 1993-1994 academic year in order to orient faculty and staff to the principles and concepts of Tech Prep and specifically to the Electronics Technology program.

- Establish partnerships among education, business/industry, and community entities.

  ACTIVITY: By Fall 1994, representatives of business and industry will be members of curriculum advisory committees; additionally, some apprenticeship partnerships will be established and business representatives will assist in curriculum design.

- Design a curriculum development plan to raise sequentially the academic skill levels of Tech Prep students.

  ACTIVITY: An integrated Tech Prep curriculum will be jointly developed and approved by appropriate signatories within BCCC and the Baltimore City Public Schools. The goal is that an articulation agreement between the two entities will be signed by May of 1994.

- Expand guidance services and counseling for Tech Prep.

  ACTIVITY: The Baltimore City Public Schools' systemwide handbook *Planning Your High School Program* was revised by the Tech Prep Guidance and Counseling Committee and will be distributed to all eighth graders no later than January 1994. During the 1993-1994 academic year, Guidance and Counseling staff will make special efforts to promote Tech Prep, especially with at-risk students.

- Develop a plan for marketing a Tech Prep program.

  ACTIVITY: The Tech Prep Guidance and Counseling Committee will continue development of its marketing plan in Fall 1993 and begin to implement several initiatives in the school and the community during the 1993-94 academic year. The plan will include program promotion to faculty, staff, students, parents, and the community.

- Identify sources for financing a Tech Prep program to support
  - facilities,
  - equipment,
  - staff training, and
  - marketing.
- Monitor progress of program implementation and ensure successful outcomes.
- Re-establish the Electro-Mechanical Advisory Committee.
- Develop support for the Tech Prep program within the business and industry communities throughout the Baltimore Metropolitan area to ensure an increased number of business partners. (The goal is an increase of 10% per year.)

LONG-TERM GOALS

- Expand collaboration among all educational segments, including business/industry, community, and government.

  ACTIVITY: Instructional resources will be focused on career exploration at the middle schools during the 1993-1994 academic year. A Technology Education Student Organization will be established in the high school. In 1994-1995, technical teachers and guidance staff will work collaboratively in developing the four-year Individual Guidance Plan (IGP) for technical and academic studies for eighth-grade students.

- Expand staff development activities to meet the needs of the Tech Prep program.

ACTIVITY: A marketing team will be established in Fall 1994 to promote the Electronics Technology Tech Prep program. In 1994-1995, a mobile van will be equipped with career and technology staff and resources to provide career and technology education exploration activities for Grades K-5.

- Develop a long-term marketing plan for Tech Prep, targeting key audiences (including components to deal appropriately with cultural and ethnic diversity issues).

ACTIVITY: In 1993-1994, evaluation data will be used to improve and expand technology equity issues. In 1993-1994, other evaluation processes will be planned and conducted, and a computerized database will be developed to track student progress in the Electronics Technology Tech Prep Program. In 1994-1995, a student portfolio format will be designed to document competencies in core academics, workplace basics, and technical job-specific knowledge. In 1995-1996, additional evaluation processes will be planned and conducted.

- Expand and maintain guidance services to middle school students.
- Develop and maintain a "review and revise" program of evaluation for continuous program improvement, with a focus on achievement of student outcomes.

PROGRAM OUTCOMES

- A long-term commitment between education, business/industry, students, community, and government
- The creation of a workforce to meet the needs of a global economy and the Greater Baltimore Metropolitan Area
- Improved retention and graduation rates
- Improved technical and academic student performance
- An increased number of students entering and completing a postsecondary Electronics Technology training program

EMPLOYMENT TRENDS

The Maryland 1986-2000 Industry and Occupation Employment Projections reflect current job openings in the service areas which are projected to increase from a 1986 employment level of 319,355 jobs to 420,200, a growth rate of 31.6%. This growth rate translates into 100,849 new jobs by the year 2000. A major area of concentration for the program is computer and related occupations with a growth of 20,667 new openings by the year 2000, a growth of 73.7%. Related areas are data processing equipment repair, with a growth rate of 87.8% change, and electrical and electronics technician, with a growth rate of 56.9%.

Although the data shown above is based on statewide employment trends, the majority of these jobs will be in the Baltimore–Washington Metro Area. Because MERVO and BCCC are located within Baltimore City, the public transportation system brings the bulk of these jobs within reach of graduates of the Electronics Technology Tech Prep Program. Additionally a new Jobs for Tomorrow Committee was activated in 1993 to better project employment needs for the Baltimore Metro Area. All key stakeholders are represented on the committee. This committee's efforts will be utilized to fine-tune the Electronics Technology program and will support Baltimore's work in program development for all future Tech Prep areas.

SECONDARY AND POSTSECONDARY ARTICULATION

Essential Ingredients

- Identification of key players (faculty/administrators)
- Shared leadership
- Commitment to the program
- Establishment of an agreement on common goals
- Agreement on mutual benefits
- Related secondary and postsecondary programs
- Listing of common and sequential courses
- Written agreement which includes
    - procedures,
    - college admission requirements,
    - program admission requirements,

- transfer credits,
- identification of programs that lead to the same/similar occupations,
- maintenance and storage of articulation agreements,
- determination of how agreements may be terminated, and
- designation of signatories to the agreements.

Although many barriers exist when developing articulation agreements, the Electronics Technology Tech Prep Committee has developed strategies for overcoming these barriers. Baltimore City Public Schools and BCCC have made a commitment to providing financial support for the program initiatives. Additional funding will also be generated through grants and reallocation of Perkins funds. The committee will develop a plan to share resources, equipment, and/or facilities to better serve the students in the program. Extensive faculty and staff development programs will be developed to educate participants to the benefits of Tech Prep for students and educators. Secondary and postsecondary faculty and administrators will be involved in structuring the curriculum to reduce natural resistance to change and turf protection.

Barriers

- Economics
- Turf protection
- Inadequate facilities
- Inadequate financial resources
- Inadequate faculty and staff development
- Incompatible secondary and postsecondary programs
- General resistance to change

WRITTEN AGREEMENTS

BCCC and the Baltimore City Public Schools in conjunction with the Baltimore City Advisory Council on Vocational-Technical Education (BCACVE), will work as a cooperative partnership to plan and implement the Baltimore City Tech Prep Program. An executive agreement has been signed by the key chief executive officers from each agency. This agreement reflects the commitment of the leadership to supporting Tech Prep initiatives.

Administrative articulation agreements will be developed between BCCC and the appropriate administrators at the Baltimore City Public Schools. These agreements should reflect consensus at the program level and should be signed by chairs, department heads, and chairs of program advisory committees. A timeline for the process of completing the administrative articulation agreements for the Electronics Technology Tech Prep Program during the implementation stage has been developed (see Attachment A).

- **Contingency Plan**

  The Baltimore City Electronics Technology Tech Prep Team has developed a contingency plan which relates to the institutions and parties involved.

- **Institutions**

  Either party may terminate the agreement at any time by notifying the other party in writing at least one academic year in advance of the effective date of termination specified in such notice.

- **Students**

  Any student enrolled in the program with sophomore standing at the date of termination of the agreement will be permitted to complete the program.

PARTNERSHIPS

Types of Partnerships

The Baltimore City Electronics Technology Tech Prep Team has identified several types of partnerships which have been or need to be established, along with the roles the partners are expected to play in the Tech Prep program.

Roles

Business/Industry

- Provide students with work-based knowledge and skills.
- Provide tours of their facilities.
- Host open houses.
- Make classroom presentations.
- Provide work experience opportunities for instructors and counselors.
- Provide work-based learning experiences and internships for students.
- Participate as team teachers.
- Provide or loan equipment.
- Speak at career days or other special events.
- Assist in determining performance standards.
- Agree to priority hiring for graduates.
- Sponsor scholarships for students.
- Guarantee placement for qualified graduates.
- Provide industry training for instructors and counselors.

Community Organizations

- Provide mentors for students.
- Offer scholarships.
- Assist with public relations and dissemination of information.
- Provide tutoring services.
- Serve as sources of referrals.

Political Officials

- Establish and implement public policies.
- Offer scholarships.

Parent Groups

- Provide support for program participation.
- Motivate other adults/parents to participate.
- Act as information sources for teachers and students.
- Formulate and support policy.

Student Advisory Groups

- Provide support for students.
- Inform other students/parents.
- Formulate policy.
- Build leadership base (empowerment).

Media

- Publicize programs.
- Assist with marketing.

Trade Advisory Groups

- Advocate for the program.
- Keep instructors/administration abreast of current trends and latest technology (State of the Art [SOA]).
- Participate in research and data collection.

BUSINESS AND INDUSTRY COLLABORATION

Business And Industry Involvement

The team has determined that the following businesses and industries are to be involved in the Tech Prep program and that there will be definite expectations associated with their involvement:

- United States Fidelity Guarantee
- Chesapeake and Potomac Telephone

- Comcast Cable
- United Cable
- Maryland Temporary Associates
- Westinghouse
- Baltimore Gas and Electric

Expectations

Business and industry will be expected to identify and commit to providing work-based learning experiences such as

- internships,
- apprenticeships,
- cooperative education programs,
- shadowing,
- mentoring,
- part-time work experiences,
- assistance in identifying performance standards (academic and technical), and
- assistance in developing and providing incentives for students (e.g., guaranteed job placement).

Additionally, businesses and industry will be expected to

- assist in providing internships for faculty,
- share resources (e.g., expertise, time, and meeting facilities),
- update faculty on current trends and technologies,
- assist in developing effective techniques for communicating about Tech Prep internally and externally, and
- educate and gain support for Tech Prep from other employers.

Incentives or Benefits

The team expects certain incentives will motivate business and industry to become involved and certain benefits to accrue from their involvement. Among these incentives and benefits are the following:

- cost saving will accrue because students will be prepared to meet industry skill standards.
- business/industry will improve their competitive edge because students will arrive better prepared to be effective employees.
- business/industry can fulfill their social responsibility and create a more positive public image.

Business/Industry Collaborative Oversight

The Leadership Team (which consists of BCCC and BCPS administrators, faculty, guidance and counseling representatives, advisory council representatives, university faculty, state agency staff, students, and parents) will recommend policies, control actions, facilitate activities, and monitor quality and appropriateness of the Baltimore City's Tech Prep delivery system.

School-Linked Partnerships

MERVO presently has several school-linked partnerships. These include the following:

- Electric Mechanical Advisory Committee
- Maryland Temporary Associates
- Comcast Cable
- United Artists
- Electro-Mechanical Advisory Committee
- Business and Technology Council at Baltimore City Community College
- Baltimore City Advisory Council on Vocational Education

ARTICULATED CURRICULUM AND CURRICULUM DEVELOPMENT

The articulated curriculum of our Tech Prep program is called the "Electronics Technology Cluster." The two program areas included at MERVO are Industrial Electronics and Instructional Computer Repair. The program areas at BCCC are Computer Electronics and Telecommunication Technology.

The Tech Prep program will address all aspects of industry (e.g., planning, management, finance, technical and production skills, underlying principles of technology, labor and community issues, and health and safety through a coordinated sequence of technical and academic courses).

The basic structure of the articulated curriculum between MERVO and BCCC will be a 2+2 program leading to an Associate of Applied Science degree (AAS) with variations such as a 2+1, leading to a certificate, and eventually a 2+2+2.

A middle school component will be added to provide students with an awareness of the program.

Curriculum-Related Options

In working toward an integrated Electronics Technology Tech Prep curriculum, the Tech Prep team will consider the following options:

- Scheduling common planning times for secondary teachers of mathematics, science, English, and electronics. This will encourage collaboration between academic teachers and electronics teachers and inclusion of applications related to electronics into existing academic courses.
- Arranging academic tutoring to assist secondary electronics students with academic courses.
- Reviewing and revising postsecondary mathematics, English, science, and social science courses as necessary (e.g., the currently offered Applied Mathematics course will be modified to better mesh with the needs of electronics students and will include a unit on calculator mathematics).

Strategies for Promoting/Implementing Integration

Strategies presently being considered to promote and implement integration are

- BCCC and BCPS will share faculty, resources, facilities, and equipment.
- community college students will mentor secondary students.
- secondary student internships will exist at the community college level.
- electronics program curriculum will be examined to assure that students in electronics courses are required to synthesize, evaluate, and use high-level thinking skills, not just recall facts and information.
- The CORD-developed Applied Mathematics and the AIT-developed Applied Communications materials will be examined for possible inclusion in the secondary curriculum. The impact of inclusion of this material on advanced standing options at the community college will be examined.

Issues in Articulating Secondary/Postsecondary Programs

Planning is currently underway to articulate the secondary and postsecondary programs. Key players in this articulation effort will be electronics instructors and academic instructors at both secondary and postsecondary levels. Issues to be considered include

- the sequence of courses to be offered at each level.
- the criteria for granting postsecondary advanced placement.
- the mechanisms to ensure that secondary course content is not duplicated in postsecondary courses.
- the mechanisms to ensure that necessary competencies learned at the secondary level are reinforced and strengthened at the postsecondary level.
- a consideration to add more advanced technical and academic courses at the postsecondary level to assist students in the transition to four-year Electronics programs.
- a consideration of the need for restructuring present courses at both the secondary and postsecondary levels.
- a consideration of what student assessments will be made in the occupational and academic areas and what standards will be established.

- an exploration of options for entry into the postsecondary component of the Electronics program by students who have not completed the Electronics Technologies Tech Prep component at MERVO.

STUDENT SKILLS NEEDED

Technical Skills Needed

The team determined that there are certain skills and competencies which students need in order to be qualified for completion of various levels of the program. Students must be able to

- fabricate, rework, and solder the latest generation of electronic components;
- read and interpret analog and digital data utilizing electronic test equipment;
- understand computer systems hardware, peripherals, and internal operating processes;
- interpret and read schematics that apply to a job function;
- utilize proper tools that will diagnose computer systems;
- use the appropriate hand tools needed to perform specific job function; and
- understand analog and digital components and devices.

Mathematical Skills Needed

Students should be able to

- solve linear and quadratic equations with one variable with an emphasis on ratios;
- solve literal equations with two or more parameters;
- understand basic trigonometry including graphs, sin, cosine, and tangent;
- understand and apply polar coordinates;
- solve and apply exponential equations;
- solve and apply logarithmic equations;
- understand and apply Boolean Algebra; and
- translate word problems into equations and solve.

Science Skills Needed

Students must be able to

- understand the chemistry of class 3, 4, and 5 elements;
- understand Bohr's model and the atom; and
- understand the physics of electricity and magnetism.

Communications Skills Needed

Students should

- know and use effectively the terminology associated with the electronics field, and
- be able to demonstrate effective communications skills especially for tasks such as trouble-shooting electronic problems and explaining the use and application of equipment, reading technical manuals and cross-reference guides, writing work orders, writing logs of work done, and writing lab project reports.

Social Science Skills Needed

Students also must

- understand the impact of electronics on society, and
- understand basic psychological and sociological principles, especially as they relate to interpersonal relationships.

Basic Content Coverage For Certification

While no basic content is required for certification, students can be certified in specialty areas from within the job market. There are several levels of employment available to students depending on their level of attainment in the Electronics Technology program.

Level of Completion in Tech Prep	Job Level
High school	entry level
1-year postsecondary	intermediate
2-year postsecondary	advanced

The Baltimore City Electronics Technology Tech Prep Team seeks to have classroom curricula incorporate work-based experiences by simulating the workplace environment within the classroom. Students will engage in actual technical tasks related to electronics technology and must adhere to workplace behaviors relating to safety and management rules, as well as to those employees need to interact well with management and other employees.

There are, however, experiences which may best be obtained in the workplace. Among these are ordering parts, customer relations, computer and related equipment repair, safety practices, time management, and keeping a repair equipment log.

The team feels business and industry can play a significant role in developing curricula and helping to bring about certain outcomes by providing direction to DACUM teams and business/industry advisory councils.

GUIDANCE AND COUNSELING

The Baltimore City Electronics Technology Tech Prep Team believes counselors can assist students in clarifying their values, gathering information on the workplace, analyzing their school and nonschool experiences, and making well-informed decisions about participating in an integrated Tech Prep program in the following ways:

- Counselors can help students assess information about Tech Prep in light of their personal values (e.g., When students' needs match Tech Prep goals, counselors can help students understand how Tech Prep can help them achieve what is important to them. When there is a mismatch between Tech Prep goals and student needs, counselors can help students choose other educational opportunities).
- Counselors can recommend that students formally assess their interests and aptitudes and gather information helpful in career planning. Counselors can help students use the information in planning their educational programs, including choosing among alternative Tech Prep options.
- Counselors can work with students to help them gather information about the workplace, thereby helping them identify and select among Tech Prep options. (Information on career and educational opportunities is essential if students are to make informed decisions about Tech Prep.)
- Counselors can encourage students to reflect upon their school and nonschool experiences to help them understand how their interests and prior experiences can

contribute to success in Tech Prep. Reflection can help students identify competencies they must have to be employed successfully, thereby helping them plan successful Tech Prep programs of study.

Further, counselors must assess students' interest and aptitudes. This will be done at both the middle school and high school levels:

- Middle School Counselors will administer the Kuder Interest and Aptitude Tests to *all* eighth-grade students through academic classes. The results of the Kuder Tests will be used to identify and group students in occupational clusters of interest. Group meetings will be scheduled for each cluster area during which students will meet with representatives of business and industry in the appropriate cluster and with counselors to discuss six year plans of study. Those interested in pursuing a Tech Prep Cluster will be shown a six-year plan which may be revised at anytime. Parents will also be encouraged to attend these meetings.
- Counselors of eighth-grade students interested in the Electronics Tech Prep Program must submit students' applications to the BCPS Office of Student Placement. Admittance to the Electronics Technology program will be based on an established criteria (i.e., 90% school attendance), the appropriate reading and math levels, and attainment of the appropriate grades in subject areas for all students applying to the Tech Prep program.
- Eighth-grade counselors will conduct orientations with students by cluster to familiarize them with career options. The orientations will feature speakers from business/industry and postsecondary institutions, career videos, and school site visits.
- The vocational technical high school counselor will articulate in the Fall with the Tech Prep MERVO/BCCC program to assist middle school students, staff, and parents.

The students who are interested in the core of electronics will participate in career counseling, tours, and a summer exploratory program that will guide the students into the correct path. The students will enter the secondary path and will then receive articulation credits once the competencies are met. Students then enter a "fast track," receiving advanced placement at BCCC based upon stringent guidelines within their program. Students may then receive a certificate or continue for the degree. Counselors will help students to progress successfully through Tech Prep in the following ways:

- In September, ninth-grade counselors will provide orientation information about and expectations of the Tech Prep program to students and parents (i.e., course sequence information at each grade level, grade requirements, and postsecondary AAS degree and Certificate program opportunities).

- High school counselors will review students' interim quarter and final quarter grades and school attendance in the ninth, tenth, eleventh, and twelfth grades on an ongoing basis.

- High school counselors will provide counseling and guidance services in other areas as needed (e.g., special problems, referral services, advising students to attend teachers' coach classes and/or outside agency additional tutoring services, and school-based peer-facilitators services).

- A counselor representative should be on the ARD committee for students with special needs to see that their needs are met (e.g., Vocational Support Team Teachers [VSST] support services).

- Prior to entering the BCCC the career counseling staff will provide relevant information about their Tech Prep program to the MERVO juniors and seniors.

- MERVO students will participate in a field trip to BCCC to receive a thorough orientation about BCCC's role in the Tech Prep program.

- Tech Prep students at BCCC will attend workshops/seminars related to self-awareness, career awareness, career exploration, preparedness, and job seeking information.

- Tech Prep students at BCCC will have their academic and computer Electronics/ Telecommunications Technology programs monitored on an ongoing basis.

- Tech Prep students at BCCC who experience academic or personal problems will be referred to the Student Support Services Counseling Department.

AT-RISK/SPECIAL POPULATIONS

The Baltimore City Electronics Technology Tech Prep Team considers those students at-risk who

- have chronic poor school attendance,
- come from dysfunctional homes,
- have parents who are underemployed or unemployed,
- are Chronically Health Impaired (CHIP),
- come from low socioeconomic levels (multiple problems), and
- have documented disabilities.

Such at-risk populations are identified at both the secondary and postsecondary levels in the following ways:

- School attendance
- Academic and technical course performance
- Department of Social Services records
- Disabled student I.D.

Special services are provided to the at-risk students by various agencies. Some of the services and agencies are as follows:

- Chronically Health Impaired
- Community Mental Health Services
- Counseling referral services (e.g., tutoring)
- Vocational assessment services
- Peer facilitators
- Vocational Support Service Team (VSST)
- Special Education Assessment Services and counselor input
- Psychological Services
- Social Work Services (both individual and group)
- Counseling Group
- Special Education Therapeutic Services
- Health Services
- Disabled Student Support Services (academic)
- Special Needs Counseling Diagnostic Assessment Services
- Academic advising

MARKETING THE PROGRAM

The goal of the marketing program is to communicate to targeted audiences the benefits and values of the Electronics Technology program to increase involvement and to promote student enrollment in the program. (In addition, the Tech Prep Consortium Information/Promotion Committee will develop a Tech Prep Marketing Plan and marketing materials.) The targeted groups are divided into internal and external audiences.

Internal Audiences

Students

- Update *Planning Your High School Program* booklet with Tech Prep options.
- Distribute promotional materials to students from eighth through the tenth grade and encourage enrollment in the Electronics Technology program.
- Tour business and industry facilities.
- Place printed ads in student newspapers.
- Tour area vocational schools and BCCC.
- Host Tech Prep Kick-Off activity for students at middle and secondary schools.
- Distribute Tech Prep poster to both middle schools and high schools.

Parents

- Provide information for parents during high school open-house events. (A booth or table could be set up to distribute information.)
- Communicate with the PTA by distributing information for publication in PTA newsletters and by making presentations at PTA meetings.
- Plan Tech Prep parent orientation meetings.
- Utilize direct mail to encourage parents of all eighth-graders to discuss the Tech Prep program options with their children as they pre-enroll for high school.

Administrators, Faculty, and Staff

- Host Tech Prep activities for targeted audiences to familiarize them with Tech Prep and the role it plays in helping students succeed.

- Deliver informational presentations during faculty meetings at middle schools and high schools.
- Identify ways to support increased awareness and exploration.
- Provide updates on Tech Prep for administrators and staff from participating schools.

External Audiences

Business, Industry, and Community

- Disseminate information through community civic organizations.
- Utilize area media to inform the community about the Tech Prep programs and options.
- Host an activity that will provide interaction between students and business/industry personnel.
- Host teacher visitations to business and industry sites.
- Host a business and industry breakfast.

LOCAL POLICIES

Three levels of planning teams have been established to develop the Tech Prep policies for Baltimore City. The planning teams are unified by the common goal of designing an exciting Tech Prep delivery system that is critical to the mission of providing students with educational pathways. The subcommittees report to the Leadership Team and the Leadership Team in turn reports to the Executive Committee. The specific responsibilities of each planning level are explained below:

1. *Executive Committee*

   This group consists of the Superintendent of Baltimore City Public Schools, the President of Baltimore City Community College, and the Chairperson of the Baltimore City Advisory Council on Vocational Education. This group has overall responsibility for the consortium's work and the final decisions about implementation.

2. *Leadership Team*

This group consists of senior administrators from BCCC and Baltimore City Public Schools, faculty, guidance and counseling representatives, representatives from the Baltimore City Advisory Council on Vocational Education, business and labor representatives, university faculty, state agency staff, students, and parents. The major role of this team is to recommend policies, control actions, facilitate activities, and monitor quality and appropriateness of the Baltimore City's Tech Prep Delivery System.

3. *Subcommittees*

This group consists of members of the leadership team and all others necessary to help in the planning and implementation process such as curriculum specialists, additional community college faculty, and business/industry representatives. The committees are responsible for the development of the specific components of the Tech Prep Delivery System. The Electronics Tech Prep Subcommittee will recommend policy concerning the following issues:

- ***Equal Opportunity***
  In accordance with state and local policy, the Electronics Technology Tech Prep Program will be open to all students. A specific effort will be made to recruit nontraditional students into the program.

- ***Teacher Certification***
  At the public schools, teacher certification will follow the requirements established by the Maryland State Department of Education. At the community college, instructors must have a Bachelor's degree in their specific technical area and must have certification in their occupational area.

- ***School Calendars/Schedules***
  Alternative scheduling patterns will be explored to allow for teacher team planning.

- ***Student Selection Criteria***
  The Tech Prep committee will follow selection criteria set by BCPS and BCCC.

- ***Postsecondary Articulation***
  Agreements will be signed by appropriate administrators at BCPS and BCCC.

- ***Job Placement Services***
  Job placement services are provided by high school personnel in accordance with school policy. At the community college, the Job Placement Office as well as the Cooperative Education Division within the Business and Technology Division provide job placement services.

- ***Assessment***
  All special needs students will be provided vocational evaluation to assist them in determining whether a career in electronics is appropriate for them.

- ***Work Experience***
  Work experience will be provided according to school policy.

- ***Student Certification***
  We plan to offer industry-standards certification in reliability soldering, Novell Certification, AT&T Technologies, and CET.

- ***Proprietary Schools***
  Articulation agreements will be developed with proprietary schools where appropriate.

STAFF DEVELOPMENT

The Staff Development Committee is composed of a staff development specialist; academic, career, and technology faculty (elementary, middle, high school, and college); counselors, building administrators (vocational and academic center representatives); business/industry representatives; a parent; and the Tech Prep Coordinator. Team responsibilities are to

- conduct a comprehensive staff development needs assessment,
- develop "categorical" staff development plans in response to the needs assessment,
- work with the Information/Promotion Committee to communicate staff development activities,
- work in concert with the Evaluation Committee to refine staff development activities, and
- conduct technical upgrading staff development activities appropriate for the Electronics Technology Cluster.

Other staff development activities will be identified and planned by the Baltimore City trades and industry specialist, building administrators, and school improvement teams from MERVO and appropriate departments from BCCC.

Staff Development Process

These are the planning steps for our staff development process, listed with their respective objectives:

- *Awareness*: Establish an understanding of the initiative and encourage staff involvement.
- *Readiness*: Elicit acceptance and recognition of the need for change.
- *Planning*: Design a staff development plan and acquire the necessary resources.
- *Collaboration*: Solicit cooperation and participation from key individuals.
- *Implementation*: Launch the staff development program.
- *Management*: Minimize problems and ensure maximum participation.
- *Evaluation*: Assess the staff development process and its effectiveness.

Topics to be considered in Baltimore City's Tech Prep Staff Development Plan depend on emphasis of the Tech Prep delivery system, needs of participating staff, and available resources. The following is a list of possible topics to be considered by the Staff Development Committee:

- Introduction to Tech Prep philosophy
- Cooperative learning
- Leading high performance teams
- Team building
- Teachers as change agents
- Developing performance standards
- Integration of technical and academic education
- Soliciting business and industry involvement
- Designing Tech Prep curriculum
- Developing articulation guidelines/agreements
- Crosscurricular visitations
- Reading in the content area

- Performance assessment strategies
- Developing junior/senior high school projects/portfolios
- Terminology and concepts of technology
- Marketing Tech Prep
- Involving parents and the community in Tech Prep
- The guidance counselor's role in Tech Prep
- Student recruitment and assessment
- Designing work experiences for Tech Prep students and staff
- Barriers to implementation
- Learning styles
- Equity and diversity

Other specific staff development activities and information will be found in the Baltimore City Tech Prep Plan.

Staff development should begin when Tech Prep planning begins. The first staff development activity can be used to create an awareness of Tech Prep and its goals and benefits. By implementing staff development activities early, commitment and support for Tech Prep can be sought from key individuals. As Tech Prep is accepted by the staff, additional individuals should become involved in staff development activities on an ongoing basis.

Staff development is a professional commitment designed to impact the greatest number of staff members and business leaders who have responsibility for planning and implementing Tech Prep. Staff development is an even greater commitment for individuals who are leading a Tech Prep initiative since they are ultimately responsible for its success.

PROGRAM EVALUATION

Process evaluation will be used to evaluate the planning process. Standards will be developed for the following purposes:

- To monitor program implementation and management.
- To define problems and identify causes.
- To improve programs based on data and problem solution.
- To study the impact of solutions.

Short- and long-term program goals as well as student outcomes have been identified. If goals are met, learner outcomes should also be achieved. If learner outcomes are not achieved, the program performance standards should be reviewed and the program should be modified as indicated by the standards.

Both quantitative and qualitative evaluation data will be used to assess program goals and student outcomes. The evaluation components will include state-mandated assessments such as the Maryland School Performance Program, Maryland Functional Tests, and the Maryland Secondary Measures and Standards. These include student performance and follow-up data.

Some of the student outcomes to be evaluated include student retention, academic gains, job placement, employer satisfaction, and the number of students who complete the secondary and postsecondary sections of the Tech Prep program. Some of the program outcomes to be evaluated include how well the program is working, the degree and quality of collaboration, and attitudes of staff from both agencies about Tech Prep programs. Other specific measures will be identified.

The Tech Prep Evaluation Committee (one of the Tech Prep Consortium committees) has been established to plan and monitor the evaluation process. The committee is composed of researchers from both secondary and postsecondary institutions, a Baltimore City Advisory Council on Vocational Education representative, the Tech Prep Coordinator, and an evaluation specialist. Responsibilities of the committee are to

- develop measures for established Tech Prep goals/objectives;
- design and establish a Tech Prep evaluation plan and schedule;
- assist the consortium in ensuring quality control for the design and implementation processes; and
- periodically evaluate the Tech Prep program components and progress and recommend needed improvements and program changes to Tech Prep staff, the Electronics Technology Committee, and the Leadership Team.

The evaluation activities listed will be used in the following ways for program improvement:

- Process evaluation will identify needed improvements and pinpoint adjustments in planning, development, and implementation that contribute to the overall quality of the initiative.
- Evaluation of outputs will answer three basic questions:
  1. Did Tech Prep produce the desired learner outcomes?
  2. Did benefits for students outweigh the cost of Tech Prep?
  3. Were the methods and approaches efficient and valuable?

Methods for ensuring continuous quality improvement are based on continuous feedback and data collection about the quality of processes, products, and services. The strategies used to ensure quality will be developed from evaluation data and will be built into the everyday operations of Tech Prep. This process will involve collecting data and monitoring many variables inside and outside of all participating institutions. Those variables (e.g., student retention and achievement of vocational and occupational goals) will be identified by the committee.

Evaluation results will be used to assist in

- staff development,
- program improvement,
- improvement of student outcomes, and
- curriculum and competency modification.

Other uses will be identified as the evaluation process is developed. Formative and summative evaluation will occur for program improvement purposes.

STUDENT ASSESSMENT

Performance standards that will be used to assess student progress will be developed by technical staff from MERVO and BCCC in the form of competency-based vocational education in Electronics Technology. The following will be considered when assessing students:

- Examinations measuring performance of specific tasks
- Review of portfolios of work done over time
- Evaluations of projects done individually or in groups
- Maryland School Performance Plan
- Maryland Functional Tests

All learner outcomes will be measured on a short- and/or long-term basis. The general assessment measures to be used are as follows:

- Competency completion
- Completion of a predetermined High School Tech Prep sequence
- Career Plan for each student

Results of the assessment will be used to

- determine the students' eligibility to enter the postsecondary program,
- determine the students' level of competence, and
- determine the students' readiness to enter the world of work.

BUDGETARY AND FISCAL CONSIDERATIONS

Through the Baltimore City Tech Prep Consortium agreement, the Baltimore City Public Schools (BCPS) and Baltimore City Community College (BCCC) have committed to providing financial support for the implementation of the Tech Prep program. In addition to the Consortium Perkins Tech Prep grant, we will realign some existing funding to support Tech Prep implementation, as well as staff development and enhancement.

Ongoing resources that must be present in order for the program to be viable and successful are as follows:

- Staffing for overall coordination, including the Tech Prep Coordinator and BCPS Central Office staff
- Staffing to provide technical assistance for Tech Prep implementation
- Site-based person responsible for implementation at BCCC and respective high schools
- Staff development time for staff development activities and joint curriculum planning and development
- Funding for additional student support services to ensure student success
- Commitment of funds for curriculum development, equipment upgrading, staff development, and teacher release time for integration activities
- Support for student placement and follow-up

Presently, the funds available to implement the plan include the following:

- Federal Tech Prep funds for the Baltimore City Tech Prep Consortium
- Local, state, and federal funds for the needs of the public schools to support new equipment purchases, updating systems, supplies, staff development, and curriculum needs
- State and federal funds allocated for the BCCC for programs involved in Tech Prep

Approaches to secure additional resources if necessary are the responsibility of the Tech Prep Coordinator and appropriate BCPS and BCCC administrators. Grant funding from federal and other sources will be needed. Donations from business/industry to support curriculum and programs will be sought.

Appendix A

DEFINED TERMS

Vocational Skills

Competencies that will enable a person to deliver a quality product or service which is required by industry and society.

Integration

Integrated instruction in its broadest sense is the uniting together of concepts, principles, content application, and skills from both occupational and academic disciplines to form a more inclusive educational experience. It exhibits the potential to revitalize the way in which both occupational and academic education are delivered.

Tech Prep

An educational path that integrates college preparatory coursework with a rigorous technical education concentration. It is a planned sequence of instruction, both technical and academic, that begins at the high school level and is articulated with a postsecondary experience that may include community college, apprenticeship programs, and entry into work. Tech Prep prepares students with the skills and competencies necessary to meet employers' performance standards—not only for entry-level jobs but also for career advancement.

Aspects of Industry

Instruction in the career and technology area of study includes all aspects of the industry such as planning, management, finance, and technical and production skills; underlying principles of technology; labor and community issues; and health, safety, and environmental issues.

Collaboration

Working together—even though opinions differ—with a willingness to exchange ideas and resources to meet mutually agreed upon goals and accomplish tasks successfully.

Electronics Technology

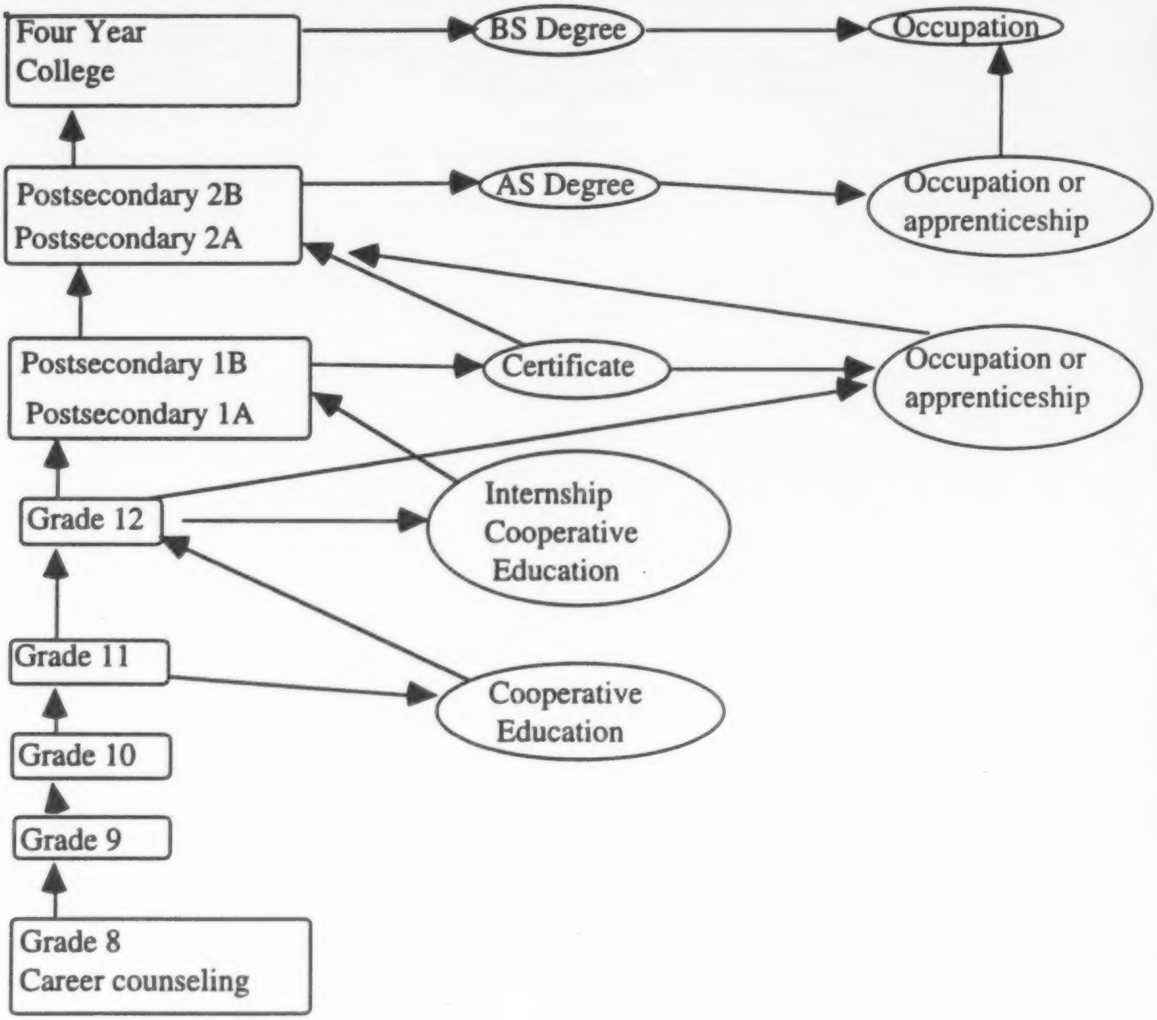
A broad-based descriptive term used to identify a common core of state of the art electronics principles and applications for the electronics clusters (e.g., Electronics Technology, Computer Technology Consumer Electronics, Industrial Technology, Office Machines Technology, and so on).

Career Cluster

Groups of occupations placed together because they share many common job duties and characteristics.

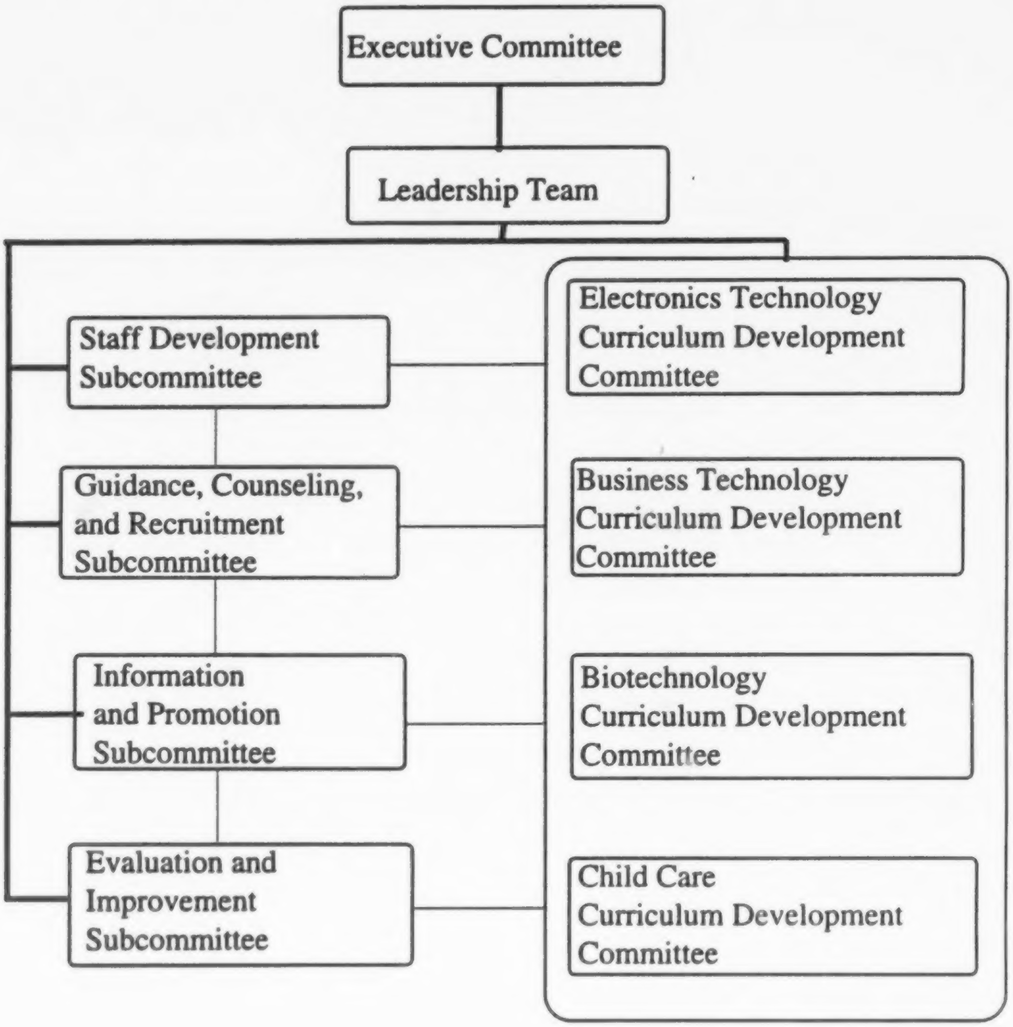
Appendix B

The following diagram illustrates the structure of the Baltimore City Electronics Technology Tech Prep Program:


Four Year College
BS Degree
Occupation
Postsecondary 2B
Postsecondary 2A
AS Degree
Occupation or apprenticeship
Postsecondary 1B
Postsecondary 1A
Certificate
Occupation or apprenticeship
Grade 12
Internship Cooperative Education
Grade 11
Cooperative Education
Grade 10
Grade 9
Grade 8
Career counseling

Appendix C

The following organization chart illustrates the Baltimore City Tech Prep Consortium organizational structure:


Executive Committee
Leadership Team
Staff Development Subcommittee
Guidance, Counseling, and Recruitment Subcommittee
Information and Promotion Subcommittee
Evaluation and Improvement Subcommittee
Electronics Technology Curriculum Development Committee
Business Technology Curriculum Development Committee
Biotechnology Curriculum Development Committee
Child Care Curriculum Development Committee

ATTACHMENT A

ARTICULATION AGREEMENT TIMELINE

Identify key players	September, 1993
Hold meeting #1 Disseminate information Discuss objectives	September, 1993
Hold meeting #2 Review programs Review courses Compare courses Compare programs	October, 1993
Hold meeting #3 Establish sequential courses Identify duplication Establish criteria/advanced placement Review competencies for each level Identify targeted population Design proposed structure	November, 1993
Hold meeting #4 Identify support courses Review content of support courses Agree on content of support courses Adjust course content if appropriate	January-February, 1994
Hold meeting #5 Redesign Tech. courses if appropriate Write competencies for advanced placement	March, 1994
Hold meeting #6 Draft articulation agreement Circulate draft of agreement	March, 1994
Hold meeting #7 Prepare final draft of agreement Hold meeting with Advisory Councils/Administrators Prepare final document Submit document for signatures	April, 1994
Have kick off/celebration Hold press conference Prepare news release Invite news media	May-June, 1994
SIGNATURES COMPLETED (2 Originals)	July, 1994

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Baltimore City Community College
Baltimore City Public Schools

Planning Component: Articulation Agreement

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To design an administrative and articulation agreement that would legally bind BCPS and BCCC and would accompany the student as an articulated document of contingencies.	September, 1993 - June, 1994	Chairs and coordinator of BCCC and the administrators of Career and Technology Education of BCPS	Executive administrators to oversee the process. Advisory Committee member for input.	Legal office of BCPS, Legal office of BCCC, and outside legal notary	To have a signed articulation agreement between BCCC and all the technical/ vocational high schools in BCPS.	Executive administrators and the grants administrators will oversee the outcome Signed agreements on file

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Baltimore City Community College
Baltimore City Public Schools

Planning Component: Budgetary/Fiscal

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Develop a budget for the Electronics Technology Program.	September, 1993	Tech Prep Coordinator, Staff from the BCPS Office of Career and Technology Education and MERVO, and BCCC staff	Baltimore City Advisory Council on Vocational Education	To be determined.	To develop and implement the Electronics Technology Program.	Program implementation Budget approved

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Baltimore City Community College
Baltimore City Public Schools

Planning Component: Business and Industry Partnerships

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Development of support for Tech Prep in the business and industry community	Beginning September 1993	Tech Prep Coordinator and Electronics Technology Committee	Baltimore City Tech Prep Leadership Committee and Marketing Committee	Space Group facilitators	Increase business partnerships 10% annually.	Survey, research, and interview Review of existing and new partnerships
Expansion of business and industry community collaboration with the Tech Prep Consortium and involvement with planning and implementation	September 1993 - June 1995	Business and Technology Advisory Council and Business and Technology Advisory Committee	C & P Telephone, U.S.F. & G., MCI, AT & T, Comcast Cable, United Cable, M.T.A., B.G. & E., Westinghouse, IBM and N.A.S.A.	Outside consultants Other business curricula Technical vendor support	Receive donations, business support, jobs, and other placements for students.	Measure the number of actual businesses and individuals who attend the meetings. Measure the donations and support received.
Establishment of curriculum advisory committees and apprenticeship partnerships	By Fall 1994	Tech Prep Coordinator, Baltimore City Tech Prep Leadership Committee, chairpersons and staff of academic programs at secondary and postsecondary areas	Business representatives	Materials Office and classroom space	New curriculum design and advisory groups New apprenticeship programs	Review by academic community and business leadership

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Baltimore City Community College
Baltimore City Public Schools

Planning Component: Curriculum Development

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To raise the academic skills level of Tech Prep students and integrate Tech Prep curriculum.	By May 1994	Electronics Team, Curriculum Development Committee Chairperson, and Tech Prep Coordinator	BCPS and BCCC leadership	School Curriculum Specialists	Increase academic skill level of Tech Prep students.	Test results and transcript review
Tech Scan	October 1993	Baltimore Tech Prep Electronics Program subcommittee	B.G. & E., AAI Corp., Martin Marietta, Electronics Program Advisory Committee, ComCast, United Artists, C & P Telephone, Circuit City, Coast Guard, and Naval Surface Weapons Center	Dundalk Community College (MD DACUM Center)	Current job titles and technology trends	The Tech Scan will be completed by November 1993.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Baltimore City Community College
Baltimore City Public Schools

Planning Component: Curriculum Development (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
DACUM Committee Review	November 1993	Baltimore Tech Prep Electronics Program subcommittee	B.G. & E., AAI Corp., Martin Marietta, Electronics Program Advisory Committee, ComCast, United Artists, C & P Telephone, Circuit City, Coast Guard, and Naval Surface Weapons Center	Dundalk Community College (MD DACUM Center)	Job tasks performed by incoming expert workers in electronics industries	The DACUM Committee will identify tasks performed by electronic technicians by March 1994.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Baltimore City Community College
Baltimore City Public Schools

Planning Component: Curriculum Development (continued)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Curriculum development	December 1993	Baltimore Tech Prep Electronics Program subcommittee	B.G. & E., AAI Corp., Martin Marietta, Electronics Program Advisory Committee, ComCast, United Artists, C & P Telephone, Circuit City, Coast Guard, and Naval Surface Weapons Center	Dundalk Community College (MD DACUM Center)	The job tasks will be sequenced into a course of study.	Curriculum Development will be completed to match the DACUM results by June 1994.
Program start-up	September 1994	Baltimore Tech Prep Electronics Program subcommittee	B.G. & E., AAI Corp., Martin Marietta, Electronics Program Advisory Committee, ComCast, United Artists, C & P Telephone, Circuit City, Coast Guard, and Naval Surface Weapons Center	Dundalk Community College (MD DACUM Center)	Program will be initiated.	Program will begin September 1994.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Baltimore City Community College
Baltimore City Public Schools

Planning Component: Advisory Committee (Electro Mechanical)

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Re-establish MERVO Electro Mechanical Advisory Committee.	November 1993	School Vice-Principal and Electronics Faculty members	BCPS Trades and Industry Curriculum Specialist	Space and materials	An active and viable advisory committee	Feedback from stakeholders; committee established and active

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Baltimore City Community College
Baltimore City Public Schools

Planning Component: Guidance Services

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Expansion of guidance and counseling services to all 8th graders, specifically to high-risk, special students	1993-1994 academic year	Tech Prep Coordinator and Chairperson of Guidance and Counseling Committee	Guidance and Counseling Committee	Audiovisual equipment and handout materials	Increase interest in Tech Prep program among the aforementioned groups	Survey feedback and research instruments

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Baltimore City Community College
Baltimore City Public Schools

Planning Component: Identification of Funding

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Identify sources of funding for facilities, equipment, staff training, marketing, and curriculum development	Ongoing	Tech Prep Coordinator, Baltimore City Public Schools-Office of Career and Technology Representative, and Maryland State Department of Education Representative	Local, state, and federal funding sources BCPS Grants office	To be determined.	Increase funding for Tech Prep	Number of grants funded

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Baltimore City Community College
Baltimore City Public Schools

Planning Component: Local Policies

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To review local policies of both agencies to determine those that may affect the implementation of the Electronics Technology Tech Prep program.	September 1993 and ongoing	Tech Prep Coordinator, Staff from the BCPS Office of Career and Technology Education, and BCCC	Baltimore City Advisory Council on Vocational Education, Coordinator for Special Populations and Equal Opportunity at both agencies, and Maryland State Department of Education	Policy documents from both agencies and personnel	To assess and recommend changes to those policies that may be in conflict with the Tech Prep initiative. To ensure compliance with local and state policies.	Review and audit teams.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Baltimore City Community College
Baltimore City Public Schools

Planning Component: Marketing

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Development of a plan to market Tech Prep in the Baltimore Metropolitan area	1993-1994 academic year	Tech Prep Coordinator and Chairperson of Information and Promotion Subcommittee	Information and Promotion Subcommittee, BCPS and BCCC public relations staff	Program and marketing materials, TV, and radio support	Program promotion to faculty, staff, students, parents, and increased awareness in the community	Evaluation survey
Acquainting general community with the Tech Prep initiative in the Baltimore City Public Schools by meeting with Information/Promotion Subcommittee to formulate promotions and news releases, determining print/ electronic media to contact for ascertaining dates, and holding a Media Kickoff	Formulate promotions and news releases by September 3, 1993 and hold Media Kickoff first weekend in October 1993.	Information/Promotion Subcommittee, BCPS and BCCC public relations personnel	*On Time* (Strickland et. al), WEAA talk show host, and community relations representatives of major TV stations	Taping of promotions and writing of press releases, delivery of tapes and promotions, and contacts with local media	General community will be more aware of Tech Prep as a motivational tool to improve education.	Ask listeners and viewers to respond in writing to media campaign.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Baltimore City Community College
Baltimore City Public Schools

Planning Component: Monitoring

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
Monitor progress and implementation.	Ongoing	Evaluation and Improvement Committee Chairperson and Tech Prep Coordinator	BCPS and BCCC administrative staff	To be determined.	Continuous improvement and quality	Interview/ questionnaire/ survey

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Baltimore City Community College
Baltimore City Public Schools

Planning Component: Partnerships

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To form and expand partnerships that support the implementation of Tech Prep.	October 1993 - ongoing	Tech Prep Coordinator, Staff from the BCPS Office of Career and Technology Education and MERVO, T&I Coordinator, BCCC Department Chairperson	Baltimore City Advisory Council on Vocational Education Advisory Committees	Partnership Coordinator Speakers Bureau	Expanded collaboration; additional resources	Signed partnership agreements

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Baltimore City Community College
Baltimore City Public Schools

Planning Component: Staff Development

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To implement staff development activities at secondary and postsecondary institutions.	Four workshops during 1993-1994 academic year	Tech Prep Coordinator and Tech Prep Staff Development Committee	Baltimore City Tech Prep Leadership Committee	Materials and space	Orientation of faculty and staff to the principles of Tech Prep and the Electronics Tech Prep Program	Feedback through evaluation instruments
To have staff become aware of Tech Prep initiative in the Baltimore City Public Schools.	November 1993 (Administrative Planning day) February 1994 - follow-up to participants' reactions	Staff Development Subcommittee of the Leadership Team, MERVO/School Improvement Team, and Tech Prep Coordinator	PTA President, student leaders (especially 9th and 10th graders)	To be determined by Staff Development Subcommittee and School Improvement Team (MERVO) which will host meeting.	Key players at school will be better informed of Tech Prep initiative and procedures for implementation.	Participants will complete an evaluation form responding to the program initiative and providing suggestions for training and format needed.

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Baltimore City Community College
Baltimore City Public Schools

Planning Component: At-Risk/Special Populations

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
The counselor will determine students at the secondary and postsecondary level who are at risk according to an established criteria. Criteria: chronic attendance problems, documented disabled, students in dysfunctional homes, low socioeconomic level, chronic health problems (CHIP), emotionally handicapped, and family underemployed or unemployed.	1994-1995 school year	High school counselor, BCCC counselor, school attendance monitor, vocational assessor, Vocational Support Team teachers, and peer-facilitator	Community Mental Health, City Health Department, Department of Social Services - (ARD), Special Education Services, Audiologist Social Worker, Psychologist, Psychiatric Services, Visual Resource teacher, and Speech and Language clinician	Resources from all listed	Student status will improve with the assistance of the resources named.	Improved grades, attitude, classroom performance, social skills, and school attendance

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Baltimore City Community College
Baltimore City Public Schools

Planning Component: Ninth-Grade Orientation for Tech Prep

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
To provide Tech Prep Program orientation to 9th-grade students accepted at MERVO.	1994-1995	9th-grade Tech Prep Electronics counselor, grade-level administration, representatives from business and industry	BCCC Electronics staff, Tech Prep Coordinator, BCPS Central Office Guidance and Counseling Representative, students in Tech Prep program, parents	Marketing materials available (e.g., brochures, video) Additional speakers for MERVO and BCCC staff	To orient parents and students about the Electronics Tech Prep program key features (i.e., course sequence, class performance, objectives overview, work-study opportunities, and postsecondary program plan).	Interim and final grades review, attendance review, overall performance review

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Baltimore City Community College
Baltimore City Public Schools

Planning Component: Articulated Curriculum

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
A formal written articulation agreement establishing a coordinated sequence of courses providing students with an opportunity to move from 11th grade through a postsecondary program without loss of credits	September 1993- July 1994	Tech Prep Coordinator and department heads from BCPS and BCCC	Leadership Team, Planning Subcommittee, and Advisory Committees	Initiative from participants and outside consultants	Signed administrative articulation agreement outlining a coordinated sequence of courses from secondary to postsecondary	Feedback from business and industry, placement rates, completion rates, and retention rates

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Baltimore City Community College
Baltimore City Public Schools

Planning Component: Program Evaluation

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
• Identification of outcomes	• Summer/ Fall 1993	Tech Prep Coordinator, Electronics Technologies Subcommittee, and Tech Prep Evaluation Committee	State Department of Education	Director of Institutional Research, BCPS and BCCC Director of Research and Evaluation	Program review, revision, and improvement	Feedback from business and industry partners, program participants, and employers; completion rates and retention rates; feedback from faculty and staff of both institutions
• Identification of standards and measures	• Fall 1993					
• Data collection	• 1994, 1995, 1996					
• Analysis and interpretation of data	• 1994, 1995, 1996					

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Baltimore City Community College
Baltimore City Public Schools

Planning Component: Counseling and Guidance

8th-Grade Records Assessment Activity

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
The 8th-grade counselor will administer the Kuder Interests and Aptitude Tests in order to determine the number of students who have the interest and aptitude for the Tech Prep program in the BCPS.	Test time frame - October and November of 1993	8th-grade middle school counselors	BCPS, Central Counseling, and Testing Office	BCPS Central Counseling and Testing Offices to obtain test materials	To identify and determine the number of students who may be eligible for applying for the high school Tech Prep program.	Kuder Interest and Aptitude Tests and Results

ESTABLISHING INTEGRATED TECH PREP PROGRAMS IN URBAN SCHOOLS
IMPLEMENTATION WORKSHEET

Coordinating Institutions: Baltimore City Community College
Baltimore City Public Schools

Planning Component: Counseling and Guidance

8th Grade Records Review/Application Process

Objective or Activity	Timeline	Person(s)/ Organization Responsible for Implementation	Other Groups to Involve	Resources and/or Technical Assistance Needed	Intended Outcomes	Means of Assessment/ Evaluation
The 8th grade counselor will review 8th graders' records (i.e., grades, standardized reading and Math levels, course sequences and attendance, and Kuder Interests and Aptitude Test results in order to determine if students are eligible to apply for the Tech Prep high school program).	November 1993 through January 1994	8th-grade counselors, Office of Student Placement, parent to sign student application form, and principal	As necessary	Application forms from the Office of Student Placement	Submit students' applications before deadline dates. Motivational activities, information presentation, and dissemination of materials conducted by the counselor	Number of students accepted